

FUGRO GLOBAL ENVIRONMENTAL & OCEAN SCIENCES GROUP

**Quality Manual Level 1
Issue 3**

Fugro GEOS Reference No: B95001/ISO9001:2000/Issue 3

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Quality Manual Level 1: B95001/ISO9001:2000/Issue 3

Issue	Date	Originator	Checked & Approved	Section / Page	Issue Purpose
0	July 2005	Karen Childs QA&HSE Manager	Jeff Coutts Managing Director	Whole	Complete review of Issue 1 Quality Manual and QA Policy Statement incorporating amendments throughout and reflecting management changes within the Fugro GEOS Group. In addition, to include Sandnes Office in Scope of Quality Management System and to bridge to Trondheim Office Quality Management System
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1	June 2006	Karen Childs QA&HSE Manager	Jeff Coutts Managing Director	Section 1 Section 5.3 Section 5.4 Section 5.5 Section 7.2 Section 8.4 Procedure 1 Procedure 2 Procedure 3	Changes to organisation chart and scope Annual review of QA Policy Statement (& QA Management System Manual as a whole) Additional descriptor for objectives Clarification of roles Additional descriptor for customer communications Additional descriptor for analysis of data Clarification of roles Clarification of roles Clarification of responsibility
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3	November 2007	Martin Denton QA&HSE Manager	Fiona Chalk	All	Changed footer lay out

Rev 3 – November 2007	Originator	Checked & Approved
Signed:		

SECTION	No of new pages	Remove pages	Insert pages	MANUAL UPDATED BY

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TABLE OF CONTENTS

Clause	Description	Page
0	INTRODUCTION.....	1
1	ACTIVITIES, SCOPE AND PERMISSIBLE EXCLUSIONS.....	2
2	NORMATIVE REFERENCES	5
3	TERMS AND DEFINITIONS	6
4	QUALITY MANAGEMENT SYSTEM	7
4.1	General Requirements.....	7
4.2	Documentation Requirements	7
4.2.1	General.....	7
4.2.2	Quality Manual.....	7
4.2.3	Control of Documents.....	8
4.2.4	Control of Records.....	9
5	MANAGEMENT RESPONSIBILITY.....	10
5.1	Management Commitment	10
5.2	Customer Focus.....	10
5.3	Quality Policy	11
5.4	Planning.....	12
5.4.1	Quality Objectives.....	12
5.4.2	Quality Management System Planning	13
5.5	Responsibility, Authority And Communication.....	13
5.5.1	Responsibility and Authority	13
5.5.2	Management Representative	16
5.5.3	Internal Communication	16
5.6	Management Review	17
5.6.1	General.....	17
5.6.2	Review Input.....	17
5.6.3	Review Output.....	17
6	RESOURCE MANAGEMENT	18
6.1	Provision of Resources.....	18
6.2	Human Resources	18
6.2.1	General.....	18
6.2.2	Competence, Awareness and Training	18
6.3	Infrastructure.....	18
6.4	Work Environment	18

7	PRODUCT REALIZATION.....	19
7.1	Planning of Product Realisation.....	19
7.2	Customer-related Processes	19
7.2.1	Determination of Requirements Related to the Product.....	19
7.2.2	Review of Requirements Related to the Product	19
7.2.3	Customer Communication.....	20
7.3	Design and Development	20
7.3.1	Design and Development Planning	20
7.3.2	Design and Development Inputs	20
7.3.3	Design and Development Outputs	21
7.3.4	Design and Development Review	21
7.3.5	Design and Development Verification	21
7.3.6	Design and Development Validation	21
7.3.7	Control of Design and Development Changes.....	21
7.4	Purchasing	21
7.4.1	Purchasing Process.....	22
7.4.2	Purchasing Information	22
7.4.3	Verification of Purchased Product.....	22
7.5	Production and Service Provision.....	23
7.5.1	Control of Production and Service Provision.....	23
7.5.2	Validation of Processes for Production and Service Provision	23
7.5.3	Identification and Traceability	23
7.5.4	Customer Property	24
7.5.5	Preservation of Product and Service.....	24
7.6	Control of Monitoring and Measuring Devices.....	24
8	MEASUREMENT, ANALYSIS AND IMPROVEMENT	26
8.1	General	26
8.2	Monitoring and Measurement	26
8.2.1	Customer Satisfaction	26
8.2.2	Internal Audit	26
8.2.3	Monitoring and Measurement of Processes.....	27
8.2.4	Monitoring and Measurement of Product	27
8.3	Control of Nonconforming Product	27
8.4	Analysis of Data	28
8.5	Improvement.....	28
8.5.1	Continual Improvement	28
8.5.2	Corrective Action	28
8.5.3	Preventive Action.....	29
	PROCEDURE 1: CONTROL OF DOCUMENTS & QUALITY RECORDS	30
	Preparation and approval of principal quality management documentation.....	30
	Distribution, control and maintenance of quality documentation	30

Control of Records	32
PROCEDURE 2: MEASUREMENT, ANALYSIS & IMPROVEMENT	35
Monitoring and measurement of system performance	35
Monitoring and measurement of customer satisfaction	35
Internal Audit	36
Monitoring and measurement of processes	36
Monitoring and measurement of service	37
Receiving, inspection and testing	37
In-process / final inspection.....	37
PROCEDURE 3: CONTROL OF NON-CONFORMING SERVICE / PRODUCT.....	38
Non-conforming items	38
Customer complaints	39
Analysis of data.....	39
Continual improvement	39
Corrective action	40
Preventive action.....	40
PROCESSES SERIES 1: SEQUENCE & INTERACTION OF PROCESSES	41
Process Chart 1.0: Overview of the Organisation's Business	41
PROCESSES SERIES 2: PLANNING OF QUALITY OBJECTIVES	42
Process Chart 2.0: Overview of Planning	42
PROCESSES SERIES 3: QUALITY MANAGEMENT SYSTEM REVIEW	43
Process Chart 3.0: Overview of Quality Management System Review	43
PROCESSES SERIES 4: RESOURCE MANAGEMENT	44
Process Chart 4.0: Overview of Resource Management.....	44
Process Chart 4.1: Recruitment / Promotion / Secondment.....	45
Process Chart 4.2: Training	46
Process Chart 4.3: Absence / Disciplinary / Grievance / Leaving Employment	47
PROCESSES SERIES 5: SERVICE REALISATION & PROVISION.....	48
Process Chart 5.0: Overview of Service Realisation & Provision	48
Process Chart 5.1: Seasense / Seasystems / Seadata / Structural Monitoring.....	49
Process Chart 5.2: Seacast	50
Process Chart 5.3: Equipment Preparation	51
Process Chart 5.4: Equipment Shipping.....	52
Process Chart 5.5: Mooring Design	53
Process Chart 5.6: Logistics	54
Process Chart 5.7: Squidcal	55
Process Chart 5.8: Squid	56

Process Chart 5.9: Sales Ledger	57
Process Chart 5.10: Contract Completion	58
Process Chart 5.11: Handling of Delivered Non-Conforming Product.....	59
PROCESSES SERIES 6: CUSTOMER FOCUS & RELATED PROCESSES	60
Process Chart 6.0: Overview of Sales	60
Process Chart 6.1: Overview of Marketing	61
PROCESSES SERIES 7: DESIGN & DEVELOPMENT	62
Process Chart 7.0: Overview of Design & Development	63
Process Chart 7.1: Development Reporting	64
Process Chart 7.2: Sales Contact.....	65
Process Chart 7.3: Response to Invitation to Tender / Request for Proposal.....	66
Process Chart 7.4: Contract Award	67
Process Chart 7.5: Development Request.....	68
Process Chart 7.6: New Development.....	69
Process Chart 7.7: Development Execution	70
Process Chart 7.8: System Build and Configuration.....	71
Process Chart 7.9: Technical Drawing.....	72
Process Chart 7.10: Structural Monitoring Design and Engineering	73
PROCESSES SERIES 8: PURCHASING.....	77
Process Chart 8.0: Overview of Supply Chain Management and Purchasing	78
Process Chart 8.1: Asset and Stock Procurement and Control.....	78
Process Chart 8.2: Capital Expenditure (CapEx)	79
Process Chart 8.3: Goods In and Bought Ledger	81
Process Chart 8.4: Control of External Documents	81
Process Chart 8.5: Import / Export.....	82
PROCESSES SERIES 9: MONITORING & MEASURING DEVICES CONTROL	84
Process Chart 9.0: Overview of the Control of Monitoring & Measuring Devices	84
Process Chart 9.1: Asset and Stock Control Verification.....	84
Process Chart 9.2: Planned Preventive Maintenance	86
Process Chart 9.3: Equipment Fault.....	87
PROCESSES SERIES 10: CUSTOMER COMPLAINTS.....	88
Process Chart 10.0: Management of Customer Complaints	88

0 INTRODUCTION

The International Standard ISO9001:2000 promotes the adoption of a process-based approach when developing, implementing and improving the effectiveness of the quality management system, to enhance customer satisfaction by meeting customer requirements.

To function effectively the Fugro Global Environmental & Ocean Sciences Group has identified and manages numerous linked activities. An activity using resources, and managed in order to enable the transformation of inputs into outputs, is considered a process. Often the output from one process directly forms the input into the next.

The application of a system of processes within the organisation, together with the identification and interactions of these processes, and their management, are referred to as the “process approach”.

An advantage of the process approach is the ongoing control that it provides over the linkage between the individual processes within the system of processes, as well as over their combination and interaction.

When used within the quality management system, such an approach emphasises the importance of:

- understanding and meeting requirements
- the need to consider processes in terms of added value
- obtaining results of process performance and effectiveness
- continual improvement of processes based on objective measurement.

The methodology known as “Plan-Do-Check-Act” can be applied to all processes and can be briefly described as follows:

- Plan: Establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organisation’s policies
- Do: Implement the processes
- Check: Monitor and measure processes and service against policies, objectives and requirements for the service and report the results
- Act: Take actions to continually improve process performance.

1 ACTIVITIES, SCOPE AND PERMISSIBLE EXCLUSIONS

Fugro Global Environmental & Ocean Sciences Group (Fugro GEOS) is an international business with offices in Wallingford and Glasgow (UK), Houston (USA) and Singapore. Further, the Fugro GEOS Group encompasses the interests of several other companies and as such, the Fugro GEOS Quality Management System, described in this Quality Management System Manual, guides these companies. These companies include Fugro Oceanor (based at Trondheim and Sandnes in Norway), Ocean Numerics Ltd (registered in the UK) GEOS Sdn Bhd (based at Kuala Lumpur, Malaysia) and the Seacast Division of Fugro Survey Middle East (based in Abu Dhabi, UAE). All these companies abide by a Quality Management System, which is compliant with ISO9001:2000. (Including compliance with EN 1380:2000 and Dir.94/9/EC for Sandnes Norway only).

Whilst the Fugro Oceanor Office based in Sandnes is governed by the Fugro GEOS Quality Management System documentation, the Fugro Oceanor Office based in Trondheim, where the Seawatch and River / Soilwatch Divisions are located, is governed by its own Quality Management System documentation, except where the Fugro GEOS Quality Management System takes precedence. The diagram on the following page explains the Fugro GEOS Group relationships and the organisation's placement within the Fugro Group of companies. Detailed organisation charts are available via the Fugro GEOS Intranet.

Fugro GEOS operates on a worldwide basis and through the Fugro Group is represented by more than 250 further offices in more than 50 countries. Fugro GEOS is a specialist systems and services business with over 30-year's experience in the provision of meteorological and oceanographic (metocean) services. The success and reputation of the organisation may be measured by the high standing of its customers. A policy of continuous self-appraisal and attention to detail has ensured the expansion of its customer base.

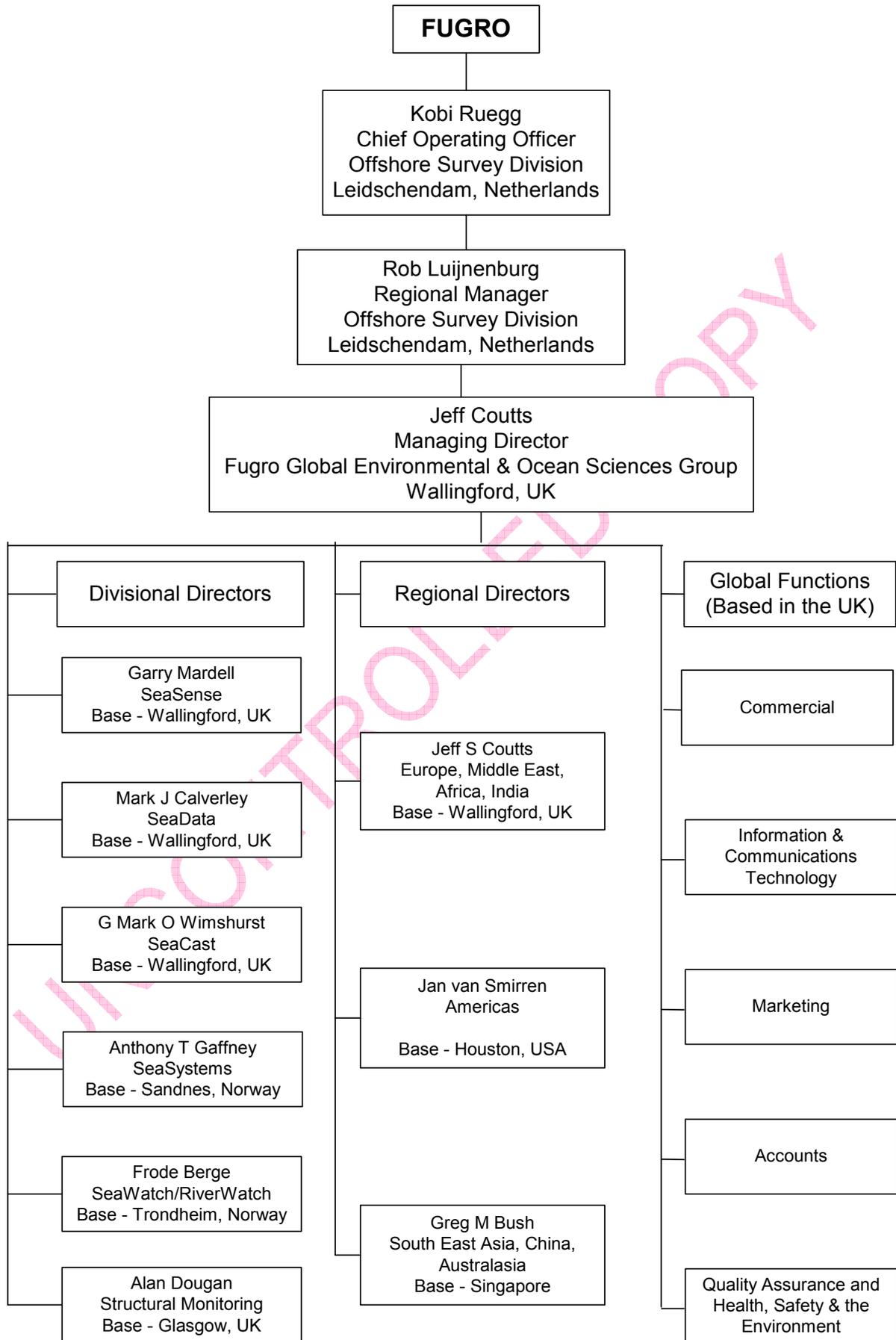
Fugro GEOS has implemented a quality management system, whose scope may be described as

- *The design, development and use and/or sale of software and/or systems for the measurement, assessment and consultancy related to meteorology, oceanography and structural performance and integrity*
- *The design, development and sale of environmental monitoring and surveillance equipment, including that which may be used within potentially hazardous areas and which is so approved according to the prevailing regulations*

in order to demonstrate its ability to provide a consistent service that meets customer and applicable statutory and regulatory requirements. This enables the organisation to address and achieve customer satisfaction through the effective application of the system, including processes for continual improvement and the prevention of nonconformity.

There are no exclusions related to compliance with Clause 7 of ISO9001:2000 in this Quality Management System, although some locations governed by this Quality Management System may have local exclusions.

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2 NORMATIVE REFERENCES

This quality manual defines the policies and principles applied against each of the requirements of ISO9001: 2000 and relates to all activities carried out in the organisation that determine quality, and lays down guidelines within which the organisation can operate.

Each section of the manual is related to an identified section of ISO9001:2000.

Required processes and procedures are also contained in or referred to in this manual.

Distribution

The Management Representative is responsible for the controlled distribution of numbered copies of this manual, including its subordinate manuals, and changes thereto, which shall be authorised by a Management Board Member. Personnel who are nominated manual holders are indicated in the controlled distribution list.

No part of this quality manual or associated documents may be reproduced in any form for distribution outside of Fugro GEOS without the express permission of a Director. The local QA Representative must approve external requests for copies, which shall be considered 'Uncontrolled'.

See [Quality Manual Level 2 \(QML2\), Section 1](#) for details.

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3 TERMS AND DEFINITIONS

The following terms and definitions are provided to assure a uniform understanding of selected terms as they are used in the this Quality Management System Manual.

ORGANISATION	means Fugro Global Environmental & Ocean Sciences Group and affiliated companies, as described in Section 1
SUPPLIER	means the third party organisation or individual in receipt of an order for the purchase of services or products, including sub-contractors
CUSTOMER	means a firm or person having a contractual agreement with the organisation, governing the supply of services or products from the organisation
SERVICE or PRODUCT	means the result of a process, which is the combination of one or more of the following generic categories: <ul style="list-style-type: none">• hardware (e.g. a scientific instrument / CCTV camera etc.)• software (e.g. a computer program)• services (e.g. a scientific consultancy)• processed materials (e.g. a quality controlled data set)
SMART	An acronym used when defining objectives: S <u>Specific</u> . State a precise, observable action / behaviour / achievement linked to rate / number / frequency M <u>Measurable</u> . A system, method or procedure must exist, which allows for tracking / recording of the stated objective A <u>Achievable</u> . The stated objective must be able to be accomplished with a reasonable amount of effort and application R <u>Relevant</u> . The stated objective must be germane both to the organisation and the individual's contribution to the organisation T <u>Time-based</u> . The stated objective must have a start and / or end time associated with it.

4 QUALITY MANAGEMENT SYSTEM

4.1 General Requirements

The organisation has established, documented and implemented a quality management system which shall be maintained and continually improved in accordance with the requirements of the International Standard, ISO9001:2000. To implement the quality management system, the organisation has:

- identified the processes needed for the quality management system and their application throughout the organisation
- determined the sequence and interaction of these processes. [See Process Chart 1.0](#)
- determined criteria and methods required to ensure the effective operation and control of these processes
- ensured the availability of information necessary to support the operation and monitoring of these processes
- put procedures in place to manage, monitor, measure, and analyse these processes
- implemented action necessary to achieve planned results and continual improvement
- ensured that any outsourced processes are identified and controlled. Control of such outsourced processes is identified within the quality management system (for example, CCTV Production).

4.2 Documentation Requirements

4.2.1 General

The quality management system, based on the requirements of ISO9001:2000 & EN 13980:2002 (Dir.94/9/EC), describes how the organisation's activities are conducted to ensure that customer's quality requirements are recognised and that consistent and uniform control of these requirements are adequately maintained. This manual describes how effective control is established by the use of formal written procedures, and also as required by contract.

The quality management system documentation includes:

- documented procedures and records required by the International Standard including a quality manual, quality policy (See [Section 5.3](#) of this Quality Manual) and quality objectives
- documents required by the organisation to ensure the effective planning, operation and control of its processes in the form of written or visual reference standards of acceptability and verification methods at various stages of the process which may arise from:
 - contractual requirements from the customer or other interested parties
 - acceptance of international, national, regional and industry sector standards
 - relevant standards, statutory and regulatory requirements
 - decisions by the organisation.

4.2.2 Quality Manual

This quality manual has been established to define the scope of the quality management system, including details of, and justification for any exclusions, with documented procedures describing the sequence and interaction of the processes included in the quality management system.

Management has defined the documentation needed to support the needs of the organisation and the quality management system. The defined documentation provides for implementation, maintenance and improvement of the system and includes:

- policy documentation
- documentation for the control of processes
- work instructions where required for defined tasks
- standard formats for collection and reporting of data
- quality records.

The defined documentation is contained in or referred to in this manual. See also, [QML2, Section 1.1](#).

The primary purpose of quality documentation is to express the quality policy and to describe the quality management system. This documentation serves as a basis for the implementation, effective operation and maintenance of the system.

The content of the quality manual is under the control of the Management Representative, with approval and authorisation for release under the control of Top Management.

4.2.3 Control of Documents

[See Procedure 1](#)

Sufficient records are maintained to demonstrate conformance to requirements and verify effective operation and provide knowledge for maintenance and improvement of the quality management system.

Documentation control has been defined and implemented to ensure that correct documents are used. See also [QML2 Section 1.2](#). All obsolete documents are promptly removed from all points of issue, therefore prevented from unintended use. Documents to be retained, and records of quality performance, are controlled, maintained and protected. Equipment documents and manufacturer's documents are controlled.

Controls are imposed to ensure that the latest copies of all documentation relevant to the accomplishment of work are available at the time and place of work to ensure effective functioning of the organisation's quality management system. Quality records are analysed to provide inputs for corrective and preventive action, improvements to process control and improvements to the quality management system.

Documents defined as quality records are controlled. A documented procedure has been established to:

- approve documents for adequacy prior to use
- review, update as necessary and re-approve documents
- identify the current revision status of documents
- ensure that relevant versions of applicable documents are available at point of use
- ensure that documents remain legible, readily identifiable and retrievable

- ensure that documents of external origin are identified and their distribution controlled
- prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

4.2.4 Control of Records

[See Procedure 1](#)

Records required for the quality management system are controlled and maintained to provide evidence of conformance to requirements and of effective operation of the quality management system. See [QML2 Section 3](#) and [QML2 Section 9](#).

Records shall remain legible, readily identifiable and retrievable. A documented procedure has been established to define the controls needed for identification, storage, protection, retrieval, retention time and disposition of records. Documentation and records may be in any form or type of medium suitable for the needs of the organisation. Additionally, all information held on computer is secured by means of password protection.

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5 MANAGEMENT RESPONSIBILITY

5.1 Management Commitment

The Managing Director and Top Management have provided evidence of their commitment to the development and improvement of the quality management system by:

- communicating to the staff the importance of meeting customer as well as statutory and regulatory requirements. See [Section 5.5.3](#)
- establishing the quality policy. See [Section 5.3](#) and quality objectives
- conducting management reviews. See [Section 5.6](#)
- ensuring the availability of necessary resources. See [Section 6.2](#)

5.2 Customer Focus

The Managing Director and Top Management have ensured that customer needs and expectations are determined, converted into requirements and fulfilled with the aim of achieving customer satisfaction. Obligations related to service including statutory and regulatory requirements are considered when determining these needs and expectations.

Also refer to [Section 7.2.1](#) and [Section 8.2.1](#)

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5.3 Quality Policy

It is the policy of Fugro Global Environmental & Ocean Sciences (Fugro GEOS) to provide a range of services and products, which meet the requirements of its customers and relevant quality standard parameters, and that the services and products are supplied on schedule at an agreed price. All work is carried out in accordance with the highest professional standards, aiming for continual improvement and customer satisfaction through the involvement and participation of all levels of management, staff and other interested parties and by using the appropriate resources. This shall be achieved via the implementation, promulgation and application of a Quality Management System.

Being a small but highly efficient and quality and cost conscious organisation, a number of personnel are required to perform a dual role within its many aspects and functions. It is, however, Fugro GEOS' policy that this dual role shall not deter personnel from their prime objective of providing a quality service through an adequately controlled quality management system. The primary function of all staff shall be the maintenance and fulfilment of this objective. Fugro GEOS' quality objectives, encompassed in the Scope of business, mission statement, aspirations, goals and measures and targets, are documented and reviewed regularly by Top Management.

Management is ultimately responsible for making balanced judgements after assessing relevant business scenarios. In arriving at such decisions, the adequacy and personal integrity of staff and other resources are of fundamental importance. All effort is made to ensure that each person in the organisation:

- understands that quality assurance is important to their future and the future of the business,
- understands how they can assist in the achievement of a quality service;
- is stimulated and encouraged to achieve a quality service.

The implementation of the policies and procedures described in this document and in the quality management system has the full commitment of Fugro GEOS' Top Management. All personnel shall have access to and be guided by the contents of the quality management system and no deviation from the methods and procedures set down shall be permitted.

This Quality Policy Statement conforms to ISO9001:2000 and has been established to ensure that it:

- is appropriate to the purpose of Fugro GEOS
- includes a commitment to meeting requirements and to improve the effectiveness of the quality management system
- provides a framework for establishing and reviewing quality objectives
- demonstrates top management commitment
- is communicated, understood and implemented at all levels within Fugro GEOS
- is reviewed regularly for continuing suitability and effectiveness.

Signed:

Jeff Coutts, Managing Director

Date: 5th June 2007

Policy Review Date: 4th June 2008

5.4 Planning

5.4.1 Quality Objectives

The Managing Director and Top Management have ensured that quality objectives needed to meet requirements for the products and services, which are measurable and consistent with the quality policy including the commitment to continual improvement have been established and maintained for all relevant functions and levels within the organisation. [See Process Chart 2.0.](#)

The quality management system is described in a series of procedures and specifies the management objectives, policies and organisations that have been developed to ensure compliance with ISO9001:2000. When any inconsistency exists between the requirements of a particular customer specified in a contract or order and those called for in the above standard, the higher standard shall prevail.

The quality manual provides a general outline of the quality management system with respect to the requirements of ISO9001:2000. Responsibilities of management and organisation have been set out in this manual. This manual is controlled and the current version is always available for reference to all employees. The quality system is detailed and targeted to achieve the documented quality policy and quality objectives. The quality system is maintained to provide assurance to our customers that the organisation has the ability and resources to give constant service to a defined standard of quality.

The quality objectives for the Fugro GEOS Group are intended to be:

- in line with the Fugro Group aspirations;
- SMART;
- appropriate to the organisation;
- key performance indicators for defined areas of the Group;
- reviewed on a regular basis and communicated to all staff;
- measured on a regular basis and the results communicated to all staff;
- used as a basis for continual improvement;
- used as component material for the quality plan

The rationale behind Fugro's culture is developed in the aspirations of the Fugro Group. These aspirations, known as the 'Golden Rules', endeavour to guide all operating companies within the Fugro Group towards a consistent goal. Focussing on these aspirations allows each operating company to apply appropriately, consistently and sufficiently business acumen to their given area of specialisation. Fugro, and therefore Fugro GEOS, aspires to be profitable, professional, competitive, technically leading and a consistent provider of quality assured products and services in carefully identified market sectors, by training, developing and focussing personnel, sharing and maintaining group resources and technology, communicating with each other and developing mutually beneficial supplier-client relationships.

5.4.2 Quality Management System Planning

Quality planning is an integral part of the quality management system and the Managing Director and Top Management have identified, planned and provided the resources needed to conform to the requirements of the quality policy, to achieve the quality objectives and ensure continual improvement of the system.

The organisation applies quality planning to all work activities and considers the implementation of the contents of this quality manual to be the primary quality plan. The integrity of this quality management system is maintained through planning and the implementation of the relevant control procedures.

All elements, requirements and provisions are documented in a systematic and orderly manner in the form of written policies, procedures and instructions. Quality Management System documentation permits the consistent interpretation of quality plans, programs, procedures, manuals and records.

5.5 Responsibility, Authority And Communication

5.5.1 Responsibility and Authority

The responsibilities, authority and the interrelation of all personnel who manage, perform and verify work affecting quality are defined and communicated in order to facilitate effective quality management.

All people have been given authorities and responsibilities to enable them to assist in the achievement of the quality objectives. This assignment of authority and responsibility helps to establish involvement and commitment of people throughout the organisation. An individual may be appointed with more than one role, in such cases he or she shall be responsible for fulfilling the tasks assigned to all such roles.

Written job descriptions are available for all personnel and a full set of same maintained with personnel records. These job descriptions identify the requirement of that role, its importance within the organisation and how the role interacts with other roles and functions within the organisation providing:

- a basis for individuals to comply with the quality objectives;
- a basis for the measurement of competency

Managing Director

Responsible to the Fugro Survey Division Chief Operating Officer for identifying and providing all the necessary resources to meet the requirements of the quality system and the organisation's customers. These resources include trained personnel for the management and performance of work, including system audits and verification activities.

The Managing Director has responsibility for the overall performance and operation of the organisation, developing strategy for the medium and long term, and for ensuring that resources are available for the successful implementation of the strategy. Duties include the future direction of the organisation, maintaining customer, supplier and interested party liaison as required. Also responsible for the co-ordination of business support functions world-wide including administration and information and communications technology systems, human resources, marketing, legal and commercial issues.

Regular meetings are held either individually or collectively to brief staff on performance, customer requirements, any recurring problems and obtaining feedback as necessary.

The Managing Director is responsible for ensuring the organisation's performance can be measured adequately in order to meet the requirements of its customers and has nominated a Management Representative with the authority and responsibility for ensuring that the requirements of the latest issue of ISO9001:2000 or equivalent, or other relevant International Standards, are implemented and maintained. The Managing Director, or nominated deputy, chairs the Quality Management System Review Meetings.

Top Management

Management Board Members shall provide evidence of commitment to the development and implementation of the Quality Management System and to improve continually its effectiveness by:

- ensuring that market and customer requirements are determined and met with the aim of enhancing customer satisfaction
- establishing the quality policy
- ensuring that quality objectives are established
- involvement in Quality Management System Reviews
- communicating the importance of meeting customer, statutory and regulatory requirements
- determining the criteria for recruitment against each of the categories of staff employed and thus ensuring adequate resources are available to carry out the processes
- ensuring that regular reviews for all staff are held and that the preparation of any training plans and their implementation is carried out.

Financial Controller

Responsible to the Managing Director for all accounting functions, including the preparation of management and statutory financial information.

Divisional Directors / Division Head

Overall world-wide responsibility for a divisional profit centre, including co-ordination, supervision of worldwide operations, tendering, commercial control and review of performance against budget and customer requirements.

Regional Directors / Commercial Director

Co-ordination of business support functions in regional offices including administration, local human resources, regional sales activity, co-ordination of regional tenders and commercial issues. Monitoring of regional costs against regional budget.

Quality Assurance and Health Safety and the Environment (QA & HSE) Manager

The nominated Management Representative responsible to the Managing Director for the implementation, approval, review, maintenance, improvement and internal audit of the organisation's QA and HSE systems worldwide in accordance with the relevant International Standards and guidelines

(currently ISO9001 for quality management systems, EN13980 for the application of same for products intended for use in potentially explosive atmospheres, OHSAS18001 for occupational safety and health management systems and ISO14001 for environmental management systems) and legal requirements. Provision of QA and HSE advice to representatives and employees in any of the organisation's offices. See also [Section 5.5.2](#).

Atex Responsible Person

The Atex-Responsible Person liaises closely with the Management Representative and the certification authorities/notification authorities body in ensuring that quality documentation and all processes related to the provision of equipment for use in potentially hazardous locations are maintained according to the requirements of the quality management system and the prevailing regulations. This person is responsible for initial approval and changes to related drawings, where appropriate, for issuing concessions and for notifying customers with respect to safe use and any schedules of limitation.

Draughtsman

Responsible for the preparation, maintenance, issue and general control of technical drawings.

Information and Communications Technology (ICT) Manager

Responsible to the Managing Director for all ICT and development functions.

Regional Management Accountants

Functionally responsible to the Financial Controller for day to day accounting functions within their region.

Operations Managers

Functionally responsible to the Divisional Directors for the day to day control of all operations, including logistics in order to ensure customer requirements are met.

Engineering Managers

Responsible to the appropriate Director for the receipt, maintenance and despatch of all equipment.

Marketing Manager

Responsible to the Managing Director for the promotion of the organisation's image and products. Marketing materials shall be in-line with Fugro corporate house-style.

Sales Managers

Responsible to the Regional Directors for researching the market and for the creation and fulfilment of sales opportunities.

Management

Managers have responsibility for the administrative, commercial and technical management of specific elements of Fugro GEOS' business in order to enable the organisation to achieve its objectives:

Project Management

Project Managers must plan for and co-ordinate the progression of individual projects, as assigned to them. They have financial and technical responsibility for individual projects, ensuring that contractual requirements are at least met and projects are managed to achieve optimum profit. They are the first point of contact for the Client for that project.

Technical Review

Technical Reviewers have responsibility for ensuring that the quality of the product is checked throughout its inception and subsequent progression and that it is properly controlled.

Party Chief

Responsible for ensuring that site work is completed safely and as per specification.

All Staff

Responsible to his or her immediate superior for the technical, commercial and quality aspects of the work that they undertake. Each member of staff also has a duty to take reasonable care of their own health and safety and that of others who may be affected by their acts or omissions. Staff are required to project the appropriate professional image, particularly when communicating with customers.

5.5.2 Management Representative

The Managing Director has appointed a Management Representative with the authority and responsibility for the development, overall implementation and maintenance of the quality management system together with the control and issue of all quality documentation.

The Management Representative is responsible for:

- Monitoring the system, and in particular for advising and training other personnel in the system
- Continually looking for improvements
- Ensuring that internal quality audits are carried out as detailed in the schedule, and that all corrective and preventive actions arising from audits are closed out
- Reporting to the management review on the organisation's performance, including needs for improvement and the awareness of customer needs and requirements throughout the organisation.

This person shall liaise closely with the Management Representative of Fugro Oceanor, Trondheim to ensure that both Quality Management Systems are consistent, interrelate and comply with the requirements of Fugro's Quality Management System and similarly with other Fugro Operating Company Management Representatives. See also [QA&HSE Manager](#).

5.5.3 Internal Communication

The Managing Director and Top Management have defined and implemented processes for the communication of quality/safety and environmental requirements, objectives and accomplishments. The

providing of this information becomes a resource for improvement and the involvement of people in achieving quality/safety and environmental objectives including one to one and team briefings, in-house memos, information on notice boards, audio-visual and electronic media as necessary.

5.6 Management Review

See [Process Chart 3.0](#).

5.6.1 General

The Managing Director, in conjunction with Top Management and appropriate staff, shall review the quality management system at intervals of at least once a year to ensure its continuing suitability, adequacy and effectiveness. The review shall include assessing opportunities for improvement and the need for changes to the system and to verify that quality policy and objectives are being satisfied.

The meeting is arranged by the Management Representative or nominated deputy and chaired by the Managing Director or nominated deputy. Present shall be Top Management, the Atex-Responsible Person and any other invited staff having responsibility for the quality management system. Other personnel may attend at the discretion and invitation of the set invitees to provide relevant input where necessary.

5.6.2 Review Input

Those present at the quality management system review shall discuss set agenda items, including:

- results of audits
- customer feedback
- process performance and product conformity
- status of preventive and corrective actions
- follow up actions from previous management reviews
- changes that could affect the quality management system
- recommendations for improvement
- review of items associated with explosion-proof equipment and related processes

5.6.3 Review Output

The output from the quality management system review shall include any decisions and actions related to:

- improvement of the effectiveness of the quality management system and its processes
- improvement of product related to customer requirements
- resource needs

The Management Representative is responsible for the production and appropriate distribution of the Action List arising as a result of such review and this shall be retained as a quality record with all agreed actions monitored and results recorded.

6 RESOURCE MANAGEMENT

6.1 Provision of Resources

The resources needed to develop, implement and continually improve the processes of the quality management system and to address and enhance customer satisfaction have been determined and are provided in a timely manner to ensure requirements are met. This includes staff, infrastructure and work environment.

6.2 Human Resources

[See Processes Series 4.](#)

6.2.1 General

Personnel who are assigned responsibilities defined in the quality management system must be competent based on their education, training, skills and experience.

6.2.2 Competence, Awareness and Training

It is policy to identify and determine competency needs for personnel performing activities affecting quality, provide training to satisfy those needs, and evaluate the effectiveness of the training provided. A procedure exists for the induction of new employees in statutory requirements and quality system elements and for identifying the training needs of existing staff in order to achieve its objectives. See [QML2 Section 11](#)

Employees are provided with job descriptions and made aware of the relevance and importance of their activities and how they contribute to the achievement of quality objectives. Appropriate employees are encouraged to maintain regularly their own records of experience. Staff appraisals are performed and records are maintained locally and available centrally of education, training, skills and experience and of training needs and progression.

6.3 Infrastructure

The Managing Director has determined, provided and arranged maintenance for the infrastructure needed to achieve the conformity of the services and product requirements, including buildings, workspace and associated facilities, process equipment, computer hardware and software, communication media, transport and supporting services.

A maintenance programme specifies the type and frequency of needed maintenance, the methods for maintenance and the verification of its completion. See [Processes Series 9](#)

6.4 Work Environment

It is ensured that the working environment is suitable at all times to achieve conformity to service and product requirements and that it meets the requirements of local, national and international legislation.

7 PRODUCT REALIZATION

7.1 Planning of Product Realisation

Planning of service realisation is that sequence of processes and sub-processes required to enable the creation of an end service or product. Planning of the realisation processes is consistent with the other various requirements of the organisation's quality management system. [See Processes Series 5.](#)

Documentation has been put in place to support and manage the processes including:

- quality objectives and requirements for the service or product
- activities within the processes, including documents and the provision of resources
- required verification, validation, monitoring, inspection and test activities specific to the service or product and the criteria for acceptance of the service or product

Records are kept to provide evidence that the realisation processes and resulting services or products meet requirements.

7.2 Customer-related Processes

7.2.1 Determination of Requirements Related to the Product

Requirements specified by the customer are determined. [See Process Chart 6.0.](#)

Particular consideration is given by the organisation to:

- the strategy of the organisation
- the extent to which customers have specified the requirements for the services or products
- requirements pertaining to software development, collection, delivery and support
- requirements not specified by the customer but necessary for fitness and purpose
- obligations related to services and products including statutory and legal requirements
- any additional requirements determined by the organisation
- product category and marking with respect to equipment for use in potentially hazardous locations

7.2.2 Review of Requirements Related to the Product

See also [QML2 Section 4](#) and [QML2 Section 6](#).

In order to establish and maintain customer satisfaction, a formal system is in place and maintained to ensure that each commitment to supply a service or product is reviewed formally and controlled. This review is conducted prior to the commitment to supply and shall ensure that the:

- requirements are adequately defined, documented and planned in writing
- requirements comply with the enquiry and any differing requirements are satisfactorily resolved
- organisation has the ability to meet the defined requirements
- stated customer requirements are compatible with the EC type-examination certificate, if appropriate

The results of the review and subsequent follow-up actions are recorded. Where product or service requirements are changed and agreed with the customer or the customer's representative, the

documentation is amended and approved and all relevant personnel are made aware of the changed requirements. Any effect that the variation has on the original contract shall be clearly stated and agreed.

7.2.3 Customer Communication

Methods and procedures have been identified and implemented to communicate with customers on information about the product and service, to deal with enquiries, contracts or order handling, including amendments, customer feedback and complaints. See also [Section 7.2.1](#), [Section 8.2.1](#), [Procedure 2](#) and [QML2 Section 12.4](#)

Communication with customers may include the following arenas:

- liaison with other Fugro operating companies
- Fugro and Fugro GEOS web-sites
- exhibitions, conferences and client presentations
- marketing materials
- pre-qualification, including industry customer-supplier databases
- regular day-to-day communication with clients
- formal requests for feedback

7.3 Design and Development

See [Processes Series 7](#) and [QML2 Section 13](#)

7.3.1 Design and Development Planning.

The organisation plans and controls the design and development of product. During the design and development process the organisation determines:

- design and development stages
- design and development responsibilities and authorities
- the steps in review, verification and validation as appropriate of the design and development

The organisation also ensures effective management of communications between the different groups involved in the design and development as well as a clear assignment of responsibility.

7.3.2 Design and Development Inputs

Inputs relating to service or product design and development requirements are determined and include:

- functional and performance specifications
- statutory and regulatory requirements where applicable
- information derived from similar historical designs if applicable
- any additional requirements essential for that design and development

These inputs are reviewed for adequacy, are complete, unambiguous and do not conflict with each other.

7.3.3 Design and Development Outputs

Any output from the design and development is provided in such a form that enables the output to be verified against the design and development input, which is approved prior to release.

All design and development outputs:

- meet the input requirements for design and development
- supply adequate information for the requirements for purchasing, production as well as service provision

7.3.4 Design and Development Review

The organisation reviews design and development in accordance with its planning, referred to in [Section 7.3.1](#), and evaluates the resulting design and development's ability to meet requirements and to identify problems and propose any necessary actions.

Relevant individuals or groups that are concerned in design and development are present at such reviews and the results of the reviews and their actions are recorded.

7.3.5 Design and Development Verification

All verification of design and development is carried out as per the planned arrangements, referred to in [Section 7.3.1](#), ensuring that that the output meets the requirements of the input.

7.3.6 Design and Development Validation

The design and development validation is carried out using and in accordance with the planned arrangements, referred to in [Section 7.3.1](#).

The validation is completed where practicable prior to the delivery or implementation of the service or product.

7.3.7 Control of Design and Development Changes

Any changes to the design and development are identified and recorded. Any such changes are reviewed, verified and validated where appropriate and approved before implementation.

Any review of design and development changes includes an evaluation on the effect of the changes to parts, services or products already delivered.

7.4 Purchasing

See also [Processes Series 8](#) and [QML2 Section 5](#)

7.4.1 Purchasing Process

All purchasing processes are controlled to ensure purchased product or services conform to requirements. The type and extent of control is dependent upon the effect on subsequent realisation processes and their output.

A system for the selection, evaluation and re-evaluation of suppliers is operated, based on the supplier's ability to supply a product or service in accordance with the organisation's requirements, particularly where that product or service directly affects the organisation's product and /or shall be used in potentially hazardous locations.

Evaluation and selection criteria for suppliers encompasses either:

- a supplier's previous and continuous record of providing product and/or services to satisfactory standards and the capability of ensuring compliance with all specified regulations and requirements
- an evaluation of a suppliers quality management system, to determine the supplier's ability to satisfy the purchase requirements, which, in the case of the supply of critical sub-products for use in potentially hazardous locations, shall be certified as being compliant with the appropriate Standard.

Second party audits on suppliers may be indicated.

Records of selection, evaluation and re-evaluation of suppliers (which shall be carried out regularly, at least annually) and an "Approved List" of the organisation's suppliers are maintained.

7.4.2 Purchasing Information

Purchasing documents shall contain information clearly describing the product or service to be ordered, including where appropriate:

- requirements for testing, approval or qualification of product, procedures, processes, service, delivery period, equipment and personnel (including, where appropriate, certification of applicable elements);
- quality management system requirements
- terms and conditions of business

Procedures are in place to review and approve purchasing documents for adequacy of the specified requirements prior to release.

7.4.3 Verification of Purchased Product

The activities necessary for verification of purchased product or service are identified and implemented.

Where the organisation or its customer proposes to perform verification activities at the supplier's premises, the intended verification arrangements (e.g. routine tests or inspections) and the method of service or product release are specified in the purchasing documentation.

The responsibility for ensuring conformance with the EC type-examination certificate remains with the organisation and the appropriate qualification test plan for declaration of conformity shall be performed. Where a supplier has been evaluated and there is documented objective evidence to demonstrate that the supplier is fully capable of producing and verifying the product and a declaration of conformity according to EN45014 is supplied with each batch of products (if applicable), no further verification of the service or product is required.

Verification by the customer neither absolves the organisation of responsibility to provide services or products, which are acceptable to the customer, nor does it preclude subsequent rejection by the customer.

7.5 Production and Service Provision

See also [Processes Series 5](#) and [QML2 Section 6](#)

7.5.1 Control of Production and Service Provision

Operations are controlled through

- the availability of information that specifies the characteristics of the product or service
- the provision of a suitable working environment
- the availability of work instructions, as necessary
- the use of suitable equipment
- the availability and use of suitable monitoring and measuring devices
- the implementation of monitoring and measuring activities
- the utilisation of suitable methods for release, collection, delivery and applicable post-delivery or on-site activities.

7.5.2 Validation of Processes for Production and Service Provision

Any production processes where the resulting output cannot be verified by subsequent measuring or monitoring, including those where deficiencies may become apparent only after the service or product is in use or has been delivered, are validated. Validation demonstrates the ability of the processes to achieve planned results and includes the following arrangements:

- defined criteria for review and approval of processes
- approval of equipment and qualification of personnel
- use of specific methods and procedures
- requirements for records
- re-validation of the service or product.

7.5.3 Identification and Traceability

Where appropriate, the organisation identifies the product or service by suitable means throughout the product or service realisation process. Where traceability is a requirement, the organisation controls and records the unique identification of the product or service.

7.5.4 Customer Property

The organisation exercises care with customer property whilst it is under the organisation's control or being used by the organisation. The organisation identifies, verifies, protects and safeguards customer property provided for use or for incorporation with the product. The customer is notified and records are maintained of any lost, damaged or otherwise unsuitable customer property.

Customer property may include, but is not limited to:

- equipment or vehicles
- documentation or electronic media

Such property may need to be quarantined or otherwise adequately identified and maintained.

Compatibility of customer supplied product with the requirements of the EC type-examination certificate is verified, if appropriate.

7.5.5 Preservation of Product and Service

Conformity of product and service with customer requirements is preserved during collection, during internal processing and whilst in transit to the intended destination. This includes identification, handling, packaging, storage and protection.

Special arrangements may need to be made in certain circumstances, for example, in order to comply with clients', legal or other requirements.

CCTV User Manuals are provided to customers purchasing those products.

7.6 Control of Monitoring and Measuring Devices

See [Processes Series 9](#), [Process Chart 5.7](#), [Process Chart 5.8](#) and [Service and Calibration Procedures Manual](#).

Monitoring and measurements to be made are identified and the monitoring and measuring devices required to ensure conformity of product and service to specified requirements are provided

Measuring and monitoring devices are used and controlled to ensure that measurement capability is consistent with the monitoring and measurement requirements.

Where applicable, measuring equipment is:

- calibrated periodically or prior to use, against measurement standards traceable to international or national measurement standards. Where no such standards exist, the basis used for calibration shall be recorded
- adjusted or re-adjusted as necessary
- clearly identified to enable the calibration status to be determined

- safeguarded from adjustments that would invalidate the measurement result
- protected from damage and deterioration during handling, maintenance and storage
- re-calibrated after repair or adjustment
- re-assessed if it is subsequently found to be out of calibration. The organisation ensures that appropriate action is taken on the equipment and on any affected product.

When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application is confirmed, prior to initial use and re-confirmed as necessary.

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8 MEASUREMENT, ANALYSIS AND IMPROVEMENT

8.1 General

See [Procedure 2](#)

The organisation plans and implements the monitoring, measurement, analysis and improvement processes needed to:

- demonstrate conformity of the product or service
- ensure conformity of the quality management system
- continually improve the effectiveness of the quality management system.

This includes determination of applicable methods, including statistical techniques, and the extent of their use.

8.2 Monitoring and Measurement

8.2.1 Customer Satisfaction

See [Procedure 2](#) and [QML2 Section 6.6](#)

As one of the measurements of the performance of the quality management system, information relating to customer perception as to whether the organisation has met customer requirements is sought, analysed and reviewed. Procedures are in place describing the obtaining of and the using of this information.

Where the product supplied is for use in potentially hazardous locations, customer satisfaction shall be related to the product's compliance with the EC type-examination certificate.

8.2.2 Internal Audit

See [Procedure 2](#) and [QML2 Section 12.3](#)

An internal audit system is established for performing periodic internal audits of the quality management system and related processes. The purpose of internal audit is to determine whether the quality management system:

- conforms to the requirements of ISO9001:2000
- has been effectively implemented and maintained.

A planned audit programme has been put in place taking into consideration the status and importance of the activities and areas to be audited as well as the results from previous audits. The audit scope, frequency and methodologies are defined. Competent personnel, other than those who perform the activity being audited, conduct audits.

The documented procedure includes the responsibilities and requirements for conducting audits, ensuring their independence, recording results and reporting to management.

Management ensures that timely corrective action is taken on deficiencies found during the audit. Follow up action includes the verification of the implementation of corrective action, and the reporting of verification results.

8.2.3 Monitoring and Measurement of Processes

See [Procedure 2](#).

The organisation applies suitable methods for monitoring and, where applicable, measurement of the quality management system processes to demonstrate the ability of the processes to achieve planned results. Where planned results are not achieved, corrective and preventive action is taken, as appropriate.

8.2.4 Monitoring and Measurement of Product

See [Procedure 2](#).

Documented procedures have been established and maintained in order to monitor and measure the characteristics of the service or product to verify that requirements for the service or product are met. This is carried out at appropriate stages of the service or product realisation process in accordance with the planned arrangements.

Sub-products shall be monitored and measured by the supplier and verified by the organisation.

Evidence of conformity with the accepted criteria is maintained and records identify the person or persons authorising release of the service. Release and service or product delivery does not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.

8.3 Control of Nonconforming Product

See [Procedure 3](#).

A documented procedure is in place to ensure that product and service, which does not conform to requirements, is identified and controlled to prevent its unintended use or delivery.

Non-conforming product and service is dealt with in one of the following ways:

- by taking action to eliminate the detected nonconformity
- by authorising its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer
- by taking action to preclude its original use or application.



- With Ex equipment the customer and the notifying body shall be warned if products have been delivered with divergences, that can cause a hazard when used in the Ex area.

Records of the nature of non-conformities and any subsequent actions taken, including concessions obtained, are maintained. When non-conforming product or service is corrected it is subject to re-verification to demonstrate conformity to the requirements.

When non-conforming product or service is detected after collection, delivery, or use has started, the organisation takes action appropriate to the effects, or potential effects, of the nonconformity.

8.4 Analysis of Data

See [Procedure 3](#).

Data generated, as a result of the monitoring and measurement activity and from other relevant sources, are collected effectively and analysed in order to determine the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made.

Data are analysed to provide information on:

- whether objectives are met
- customer satisfaction
- conformance to customer, product or service requirements
- characteristics and trends of processes
- opportunities for preventive action
- suppliers.

8.5 Improvement

See [Procedure 3](#).

8.5.1 Continual Improvement

The process necessary for the continual improvement of the quality management system is planned and organised.

Continual improvement of the quality management system is facilitated through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

8.5.2 Corrective Action

A corrective action programme is established and maintained to eliminate the cause of non-conformities in order to prevent recurrence. Corrective action appropriate to the impact of the problems encountered is appropriately carried out.

The documented procedure for corrective action defines requirements for:

- identifying and reviewing non-conformities including customer complaints
- determining the causes of non-conformities
- evaluating the need for actions to ensure that non-conformities do not recur
- determining and implementing the corrective action needed
- recording results of action taken
- reviewing the effectiveness of corrective actions taken.

8.5.3 Preventive Action

Documented procedures have been established and are maintained for implementing preventive action to eliminate the causes of potential non-conformities in order to prevent occurrence. Preventive actions are appropriate to the effects of potential problems.

The documented procedure for preventive action defines requirements for:

- identifying potential non-conformities and their causes
- evaluating the need for action to prevent occurrence of non-conformities
- determining and ensuring the implementation of action needed
- recording results of action taken
- reviewing preventive action taken.

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PROCEDURE 1: CONTROL OF DOCUMENTS & QUALITY RECORDS

Quality Objective

To ensure that sufficient quality records are maintained to demonstrate conformance to requirements and verify effective operation and improvement of the quality assurance and the health, safety and environmental management systems together with knowledge of the standards, statutory and regulatory requirements that apply to its activities. Quality records shall remain legible, readily identifiable and retrievable.

Responsibility

It is the responsibility of all personnel involved in the issue and use of these documents to adhere to the system of document control. The Management Representative in conjunction with the Administration Manager shall maintain an effective system of document control.

Procedures

Preparation and approval of principal quality management documentation

- Compiled for use as procedural, systems and/or control over organisation activities.
- Produced, signed, issued and controlled by the Management Representative.
- Checked and authorised by a Management Board Member.
- The Managing Director is responsible for signing the Quality Policy Statement.

Distribution, control and maintenance of quality documentation

See also [QML2 Section 1](#)

- The Management Representative is responsible for the distribution, and control of all quality related documentation.
- Each individual is responsible through the Management Representative for the care and maintenance of all quality management documentation issued, and to ensure that all the documents therein are uniquely identified with issue and starting date.
- The first approved issue of all documentation shall be Issue 1, Revision 0.
- The Management Representative shall maintain the master copy of all issued quality management documentation, and a register indicating titles, numbers, revision status and names of holders of each document.
- The Management Representative shall ensure that all quality documentation is identified in such a manner as to be identifiable and traceable.
- The Atex-Responsible Person is responsible for the distribution, control and maintenance of relevant documentation. All relevant documentation and equipment shall contain the Ex mark and be in accordance with the type approval certification. The EX mark appears thus:



- The notified body responsible for the quality system notification for EC type-examination certificates is 0470 Nemko it must be emphasised that that no part of the certification shall be changed without consultation/approval from the certification authorities.
- The Human Resources Manager maintains and controls the issuing of Company Organisation Charts and Employment Handbooks.

Revisions – Level 1 and 2 Documents

When a revision to any procedure, or document is required the originator must send it to the Management Representative, who shall circulate it to the relevant parties for comment and in-principle approval by a stated deadline. The changes must be authorised by a Management Board Member prior to incorporation. The Management Representative shall ensure that the changes are compatible with the Quality Management System and Objectives.

Following agreement, the revisions to the relevant pages of the manual shall be raised by one revision or issue level as appropriate (e.g. Issue 1 Revision 0, to Issue 1 Revision 1 and so forth). Where the change is only of a minor nature and only affects one page, or a minority of pages, only the revision level shall be changed. Where the change is major and much of the manual has to be changed, or when a significant number of revisions have been made, the issue level shall be changed.

To identify where revisions have been introduced, a suitable and sufficient description of the changes made shall be entered on the control page against the revision or issue number. The revised sheet(s) with the next revision number shown in the footer shall be dated and approved to become the master document. Each new or revised document shall be given the next issue or revision number and dated accordingly.

The Management Representative shall arrange for the distribution of revised copies (including control page(s) and relevant page(s) of the table of contents, as appropriate) to relevant personnel and the updating of index revision information. The Management Representative, or the Local Representative must ensure that all obsolete or superseded documentation is removed and replaced by the new issue copies. Documentation removed from use shall either be destroyed or clearly endorsed on each page as "Superseded Document" and appropriately filed.

In the case of CCTV User Manuals and Atex document matrix, the Atex-Responsible Person may deputise for the Management Representative. However, the Management Representative shall ensure that they are compatible with the Quality Management System and Objectives.

Revisions – Level 3 Documents

When a change to a company form is required, the originator shall make the changes known to the form owner for approval. The Administration Manager or deputy shall then change the master form, giving it a new version number and date. These changes shall be summarised on the [Company Forms Index](#) accessible via the [Intranet](#). The full procedure is detailed on the [Intranet](#).

When a change to a Technical Instruction is required, the originator shall make the changes known to the Technical Instruction owner for approval. The relevant Operations Director shall authorise the changes. The Administration Manager or deputy shall then change the master form, giving it a new version number and date. These changes shall be summarised on the [Technical Instructions Index](#) accessible via the [Intranet](#). The full procedure is detailed on the [Intranet](#).

Reviews

The Management Representative shall be responsible for an annual formal review of quality documentation to enable its relevance to current organisation and practice. This may occur at the Quality Management System Review. A record of such reviews shall be maintained.

New Documentation

When a new procedure is required, the originator shall register the title with the Management Representative who shall allocate it a unique number and apportion ownership of the procedure to the relevant party. When agreement has been reached on content of the procedure, the Management Representative shall be responsible for the production, the obtaining of approval and the distribution of the new procedure and the updating of the index revision information, as described previously.

Control of Records

See also [QML2 Section 3](#)

All quality records shall be legible and identifiable to the order or contract involved. Quality records are typically records reflecting evidence that the completed work has been carried out by a competent person and of an acceptable quality, together with all other back-up information necessary (such as test reports and certificates etc). Personnel shall ensure that all quality system documentation is completed correctly, circulated and subsequently stored. Files shall include where applicable all relevant documentation, correspondence, emails faxes etc., and are compiled in accordance with the documented procedures according to complexity. Work and associated quality records shall be retained either in hard copy and / or on computer for the life of the process, as functional records.

All quality records are thereafter archived and stored in a suitable environment, which minimises deterioration, damage or loss. Records are disposed of as per the working procedure, unless any contractual requirement stipulates otherwise. Quality records are maintained for a minimum period of three years, dependant on the market served, life cycle of service provided, probability of liability, trade or professional body rules or statutory and regulatory requirements, which is not normally less than three years. All quality documentation related to the provision of equipment for use in potentially hazardous locations shall be retained for a period of at least ten years.

The Administration Manager is responsible for the implementation and maintenance of a retrieval system and for ensuring that all quality records are correctly identified and that archiving is controlled. Archived records shall be monitored to ensure continuing suitable storage conditions.

Cross-referencing, sorting and identification systems (for example relating to vessel, customer, contract number, transmittals, commerce etc) are available to appropriate personnel and are maintained.

Control of Incoming Mail

All incoming mail, including any hand delivered documentation, is opened by an authorised person for checking and reviewing. Prior to being distributed all mail is date stamped and may be logged. Goods received by mail are subject to the Goods In Process. (See [Process Chart 8.3.](#))

Control of Product User Manuals

CCTV User Manuals are controlled and issued to Customers as required, with copies taken from the current Master Document and circulation recorded.

Control of Technical Drawings

See [Process Chart 7.9.](#)

Control of technical drawings is the responsibility of the Draughtsman, or in the case of drawings for individual projects, the Project Manager or other nominated person. [Manufacturers' technical literature](#) may form part of the technical drawing process and where this is the case, the Draughtsman also controls this information.

Three types of drawings generally form the portfolio. These are:

- Block Diagrams Relating to the design of the whole system. May be customer-provided.
- General Arrangements Relating to the dimensions and the foot print.
- Wiring Diagrams Relating to the cabling and terminations.

A log is kept summarising document version control and circulation. Drawings are identified with at least vessel number, contract number, date, drawing revision letter and authoriser(s).

- Drawings that are work in progress are stamped, 'Check Print'
- Drawings that are used for construction in the Workshop are stamped, 'Workshop Copy'
- Drawings that are used in construction on site are stamped, 'As Built'
- Current versions of drawings are stamped with, 'Master'
- If, and when a drawing is revised, the revision status is identified with the next alphabetical letter and previous drawings are stamped, 'History' or 'Superseded'
- 'Check Print', 'Workshop Copy' and 'As Built' drawings shall be destroyed once 'Master' drawings are completed, checked, approved, stamped and signed

Drawings are collected, modified, constructed as appropriate, passed to the relevant person for approval and filed as hard copy and as electronic copy on the relevant contract file. Only appropriately approved current drawings may be used for engineering purposes. All staff have the responsibility to ensure that this procedure is not compromised.

Control of Computer Data

Procedures are in place to maintain the integrity of the organisation's ICT infrastructure. This is the responsibility of the ICT Manager. See [QML2 Section 9](#).

Computers are networked. All computer data are protected in terms of access control, password protection etc., and all software including incoming electronic material (e.g. Email and attachments) is virus checked prior to use. Data held on magnetic media are backed up weekly and the back ups kept in a fire proof safe. Emails and other data are appropriately recorded within the system in such a way that they are readily available for issue and checking. Hard copies of relevant computer data are taken as necessary and retained in the relevant file. All staff are responsible for ensuring that this is carried out.

A list of all current software and licences is maintained detailing current version and revisions.

Manufacturers' technical literature

Manufacturers' technical literature is held by individual members of staff for ease of reference or in the Central Library. Individuals are responsible for ensuring that the latest issue is held. Any literature of which is out of date or reprinted is replaced with the correct edition at the appropriate time. The validity of any literature must be checked by the appropriate person prior to specifying the materials or product described in the literature, because manufacturers reserve the right to alter technical details at any time without notification and this could produce errors in specification documentation. Removal and return of any literature is controlled by all staff, as appropriate.

Control of standards, statutory and regulatory requirements

See [Process Chart 8.4](#) and [Processes Series 7](#)

Standards, statutory and regulatory requirements generally fall into the following categories:

- those issued by National/International authorities
- those issued by customers
- specifications that are generated by the organisation and/or by approved organisations.

Administration is responsible for entering such documents to the Library Database and for their issue or storage, as appropriate. Each document shall then be kept as a controlled copy subject to regular checking and updated as necessary. Unregistered copies of standards, statutory or regulatory requirement documents shall not be kept by any individual, as copying is likely to be in breach of copyright.

PROCEDURE 2: MEASUREMENT, ANALYSIS & IMPROVEMENT

Quality Objective

To plan and implement the monitoring, measurement, analysis and improvement processes needed to demonstrate conformity of the service, quality management system and to continually improve the effectiveness of the quality management system.

Responsibility

It is the responsibility of the Managing Director, Top Management and the Management Representative.

Procedures

Monitoring and measurement of system performance

The organisation has provided for the measurement and evaluation of its service, the capability of processes, customer satisfaction and items required by other interested parties at appropriate intervals. This includes the recording, collecting, analysing, summarising and communication of relevant data needed to monitor and improve the organisation's performance.

To improve the overall efficiency and effectiveness of the quality management system, the following areas are measured and monitored:

- conformity of the service
- customer satisfaction
- internal audits
- self-assessment methodologies.

Monitoring and measurement of customer satisfaction

A process is in place to measure and monitor information relating to customer satisfaction. This is one of the measurements of performance of the quality management system. See [QML2 Section 6.6](#).

Additional objective evidence of customer satisfaction is achieved in a number of ways including:

- audits carried out by large customers
- internal audits
- referrals
- repeat orders over a given period
- analysis of customer complaints
- analysis of credit notes to customers
- compilation of letters of satisfaction from customers.

Data shall be developed, collated and discussed at the Quality Management System Reviews.

Internal Audit

See also [QML2 Section 12.3](#)

To assess the strengths and weaknesses of the quality management system and review the efficiency and effectiveness of other activities and support processes, internal audits are carried out as planned. The Management Representative prepares a Corporate QA Audit Schedule and Local QA Representatives prepare a Local QA Audit Schedule annually. Although plans are flexible in order to permit changes in emphasis based on findings and observations obtained during the audit, they shall cover the entire quality management system at least once within the twelve months period at that location. Audits are scheduled on the basis of the status and importance of the activity. Audits and follow-up actions are carried out in accordance with the documented procedures and are carried out by competent personnel NOT having direct responsibility for the function or activity being audited. Where considered desirable by the Managing Director outside expertise may be called in to perform, or to assist with audits. Evidence of training or expertise shall be required.

The appropriate QA Representative shall arrange audits and appoint 'in-house' or external auditors. Prior to the audit, the auditor shall plan the audit and arrange a mutually convenient time and date for the activity to be audited. Any non-compliance observed shall be noted and a Corrective Action Request raised if it is significant. The corrective action must be effected within the agreed time period. If there are genuine reasons why the action cannot be completed on time, it should be brought to the attention of the Auditor, who may decide to extend the time scale. Failure to complete corrective actions by the extended date shall be referred to the Management Representative and then to Top Management or the Managing Director for review and action. Auditors may then carry out a follow-up audit in order to determine that the action has been implemented and is effective.

External audits and consequent follow up by a competent person are espoused and deemed to be of value in the continual improvement process.

Monitoring and measurement of processes

Within the procedures, work instructions, or allied documents, the measurement of processes identifies:

- characteristics which directly affect process performance
- the scope, type and frequency of measurement
- methods for ensuring consistency, validity, review and timely access of quality measurement data.

These methods demonstrate the ability of the processes to achieve planned results. When these planned results are not achieved, corrective action is taken to ensure conformity of the product. Changes shall not, however, be made to finished goods for use in potentially hazardous locations, as this may compromise the integrity of the equipment and will nullify the validity of its certification.

Monitoring and measurement of service

Suitable methods for monitoring, and where applicable measurement, of the quality management system processes demonstrates the ability of these processes to achieve planned results or facilitate implementation of the necessary correction and corrective action to ensure conformity of the service.

Receiving, inspection and testing

See [Processes Series 8](#), in particular [Process Chart 8.3](#), and also [Process Chart 5.3](#)

Purchased goods may only be accepted against a valid purchase order and on receipt are inspected for identification, quantity, and condition against the supplier's delivery note. If satisfactory, the organisation's copy of the suppliers' delivery note shall be signed and dated as acknowledgement of receipt of the goods stated. The delivery note is used to update the purchase order record in POMP. Suppliers' delivery notes are filed. Supplier's invoices are checked against the purchase order record in POMP and are thereafter entered. When reconciliation of invoice to purchase order is complete, payment may be made. Items that do not conform to requirements are appropriately marked or labelled, and the goods placed in quarantine pending disposition. The requisitioner is informed and a decision made as to what further action may be necessary.

Purchasing and related records are retained for a period of at least seven years.

In-process / final inspection

See [Processes Series 5](#)

Technical Review is carried out throughout the product and service realisation process.

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PROCEDURE 3: CONTROL OF NON-CONFORMING SERVICE / PRODUCT

Quality Objective

To ensure that non-conforming incoming goods, the recycling process of goods or service not conforming to specified requirements, or the subsequent retrieval of non-conforming goods or service are clearly identified and that non-conforming goods, where possible, are segregated from conforming items. Also, to ensure the recording of such non-conformances in order to assist learning and to provide data for analysis and improvement.

Responsibility

It is the responsibility of the Divisional Director and Management Representative to ensure that all personnel, involved in the control of non-conforming items, adhere to this procedural requirement and that corrective action is taken, where applicable, to prevent recurrence and to effect ongoing continual improvement.

Procedures

Non-conforming items

Any difficulties or failures relating to suppliers or non-conforming items received are rectified. See [Process Chart 8.3](#).

Non-conformances identified during the production process, where possible, are corrected immediately. See [Processes Series 5](#). Should the person responsible identify an area of non-conformance that cannot be rectified, it may be necessary to contact the Divisional Director who shall evaluate the situation and consider what alternatives are available.

Should any action for rectification require any form of deviation from the initial specification and where it is considered that a non-conformance would not materially affect the performance then a concession may be allowed, which shall be agreed by the Client.

Non-conformances identified after delivery, where possible, are corrected immediately upon identification. See [Process Chart 5.11](#).

A Non-Conformance Report, Complaint and Action Record or Corrective Action Request shall identify work involved, the person responsible, the reason for the non-conformance and the suggested course of action. Where applicable this may involve inspection of previous or associated work, and identification of any further non-conformance.

Concessions for products that take the products outside the design as defined in the EC type-examination certificates and all related technical documentation are not permitted.

Customer complaints

See [Processes Series 10](#) and [QML2 Section 12.6](#)

All customer complaints and service problems received shall be acknowledged to the customer concerned and recorded on a Complaints and Action Record. The complaint shall be investigated by the person determined by the Complaint Co-ordinator along with any other interested party, in order to determine the validity of the complaint and where possible the cause. Where possible, the investigation shall determine the reasons for the complaint and action to be taken to prevent recurrence and the customer advised of the results of the investigation and any proposed action to prevent recurrences.

Analysis of data

All appropriate data are collected and analysed in order to determine the suitability and effectiveness of the quality management system and to identify improvements that may be made. Data shall include:

- work operations including characteristics of processes and their trends. See [Processes Series 5](#) and [QML2 Section 6](#)
- evaluation of suppliers. See [Process Chart 8.0](#) and [QML2 Section 5](#)
- customer satisfaction. See [QML2 Section 6.6](#)
- conformance to customer requirements. See [Process Chart 6.0](#), [Process Chart Series 5](#) and [QML2 Section 6](#)
- internal audits See [Procedure 2](#) and [QML2 Section 12.3](#)

Continual improvement

In order to improve processes and rather than wait for a problem to reveal opportunities for improvement, the organisation has put a system in place to identify and manage continual improvement through the involvement of people and by the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and Quality Management System Reviews. Actions for continual improvement consist of the following items:

- reason for improvement, detailing an area selected for improvement and the reason for working on it
- the current situation, evaluating existing process efficiency, collecting and analysing data to discover what types of problems occur most often, selecting a problem and setting a target for improvement
- analysing, identifying and verifying the root cause of the problem
- identification of possible solutions, exploring alternatives and implementing solutions that shall eliminate the root causes of the problem and prevent them from recurring
- evaluation of effects, confirming that the problem and its root causes have been decreased, the solution worked, and the target for improvement has been met
- standardisation of the new solution, replacing the old process with the new process to prevent the problem and its root cause from recurring
- evaluating the efficiency of the new process and the effectiveness of the improvement action, and planning solutions to eliminate any remaining problems and to put in place objectives for further improvement, as necessary.

Corrective action

Upon identification of a problem, such as described on an Incident Report Form, a Non-Conformance Report, a Corrective Action Request or a Complaint and Action Record, the corrective action shall be actioned. The corrective action applied shall provide a solution to eliminate the cause of non-conformances and therefore recurrence.

Preventive action

Upon identification of a problem, such as described on an Incident Report Form, a Non-Conformance Report, a Corrective Action Request or a Complaint and Action Record, the preventive action shall be actioned. Preventive actions applied shall preclude the recurrence of similar non-conformances.

To identify potential problems, or where there is an indication of a need for improvement in the quality management system, all incidents, non-conformances, customer complaints and subsequent actions shall be monitored over an agreed period to ensure the effectiveness of the actions.

The steps taken to prevent recurring non-conformances within the quality management system are decided at the Quality Management System Reviews, or at meeting specifically called for this purpose on a more frequent basis and are recorded on the meeting minutes which are subsequently retained. It is the responsibility of the Quality Management System Review Team to determine what steps are required for preventive action.

All staff have a responsibility for reporting ideas, which may assist with preventing the occurrence of non-conformities and also to improve the Quality Management System.

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PROCESSES SERIES 2: PLANNING OF QUALITY OBJECTIVES

Quality Objective

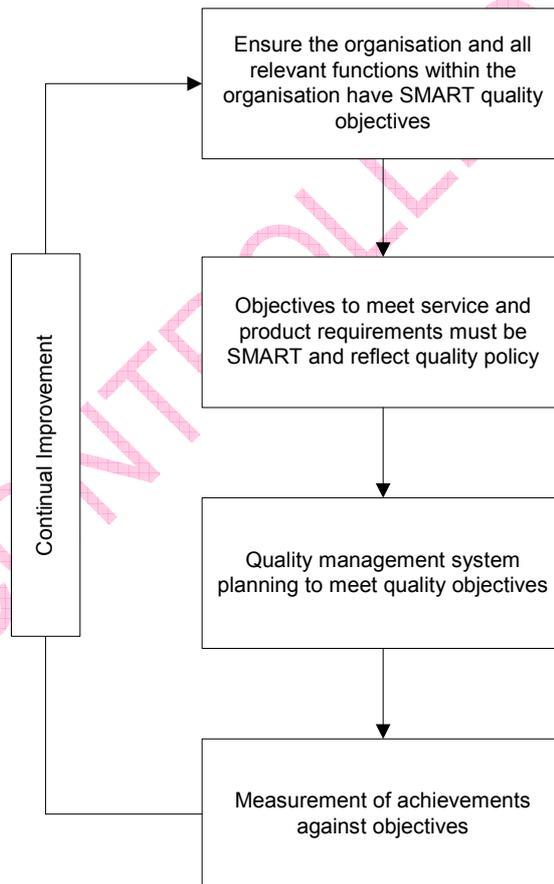
To ensure that quality objectives, including those needed to meet the requirements for service and products, are established at relevant functions and levels, are SMART and consistent with the quality policy.

Responsibility

It is the responsibility of the Managing Director to plan and define the quality objectives. It is the responsibility of all staff to plan and carry out their work in line with corporate objectives and to measure the effectiveness of the achievements.

Processes

Process Chart 2.0: Overview of Planning



PROCESSES SERIES 3: QUALITY MANAGEMENT SYSTEM REVIEW

Quality Objective

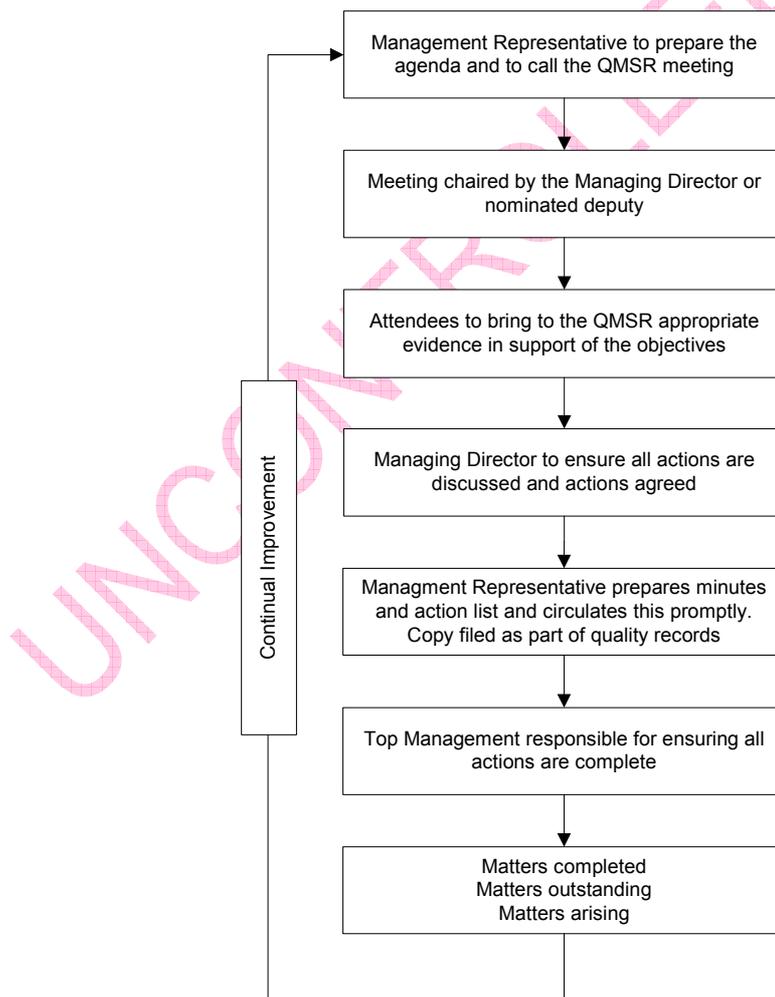
To ensure that evidence is provided of the commitment to the development, continuing suitability, adequacy, effectiveness and continual improvement of the quality management system by conducting regular reviews, at least once per year, to assess the need for changes, including to the quality policy and quality objectives.

Responsibility

The Managing Director is responsible for chairing the meeting, conducting the review in accordance with the agenda, despatching the resulting minutes and action list and driving change. The Management Representative is responsible for preparing the agenda, the minutes and the action list and ensuring the necessary information is passed to relevant personnel. Top Management is responsible for ensuring they and their staff carry out the actions required of them.

Processes

Process Chart 3.0: Overview of Quality Management System Review



PROCESSES SERIES 4: RESOURCE MANAGEMENT

Quality Objective

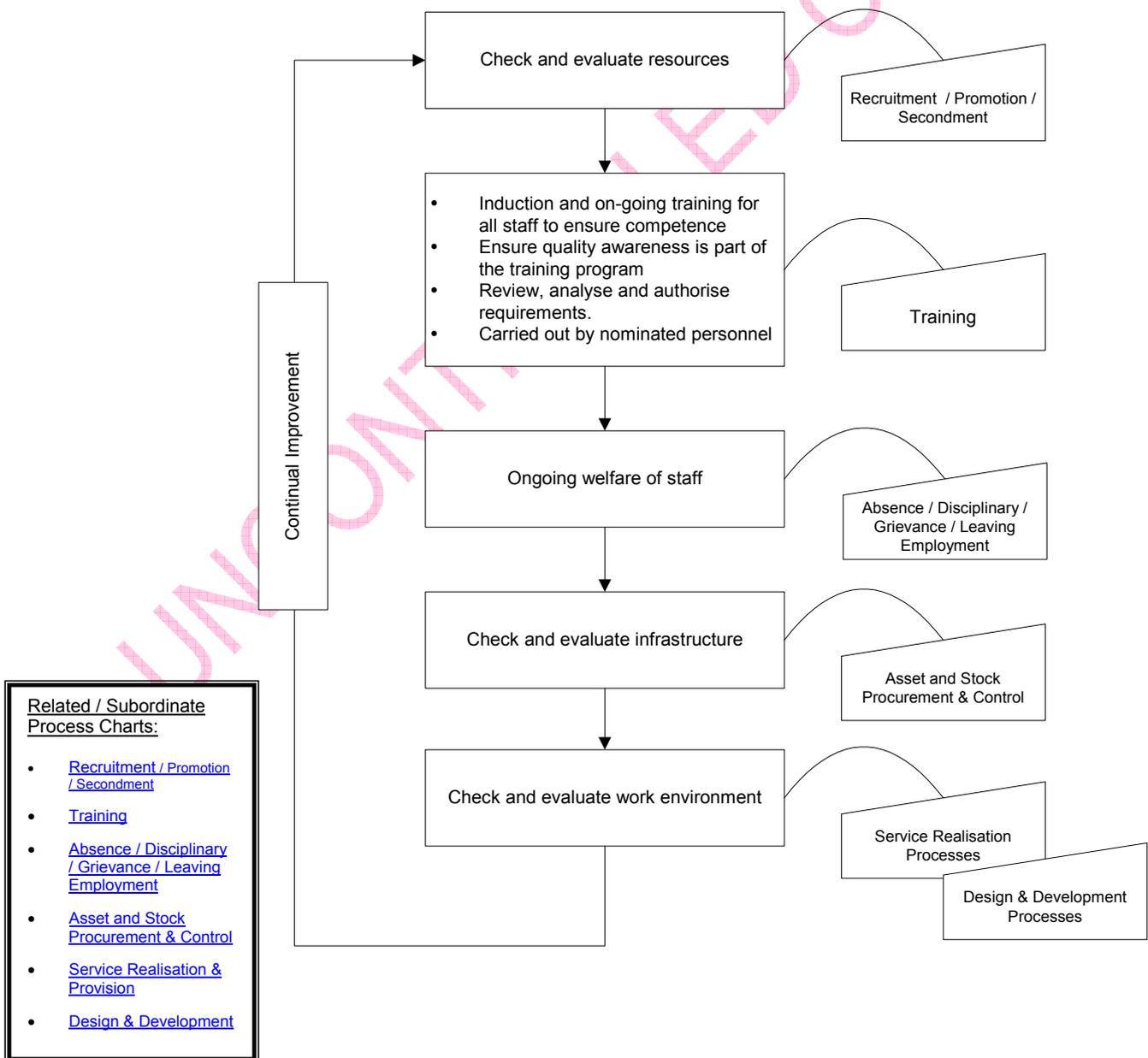
To ensure that all resources essential to the implementation and achievement of the organisation's strategies and objectives for the quality management system are identifiable and made available. These include people, suppliers, information, infrastructure, work environment and financial resources.

Responsibility

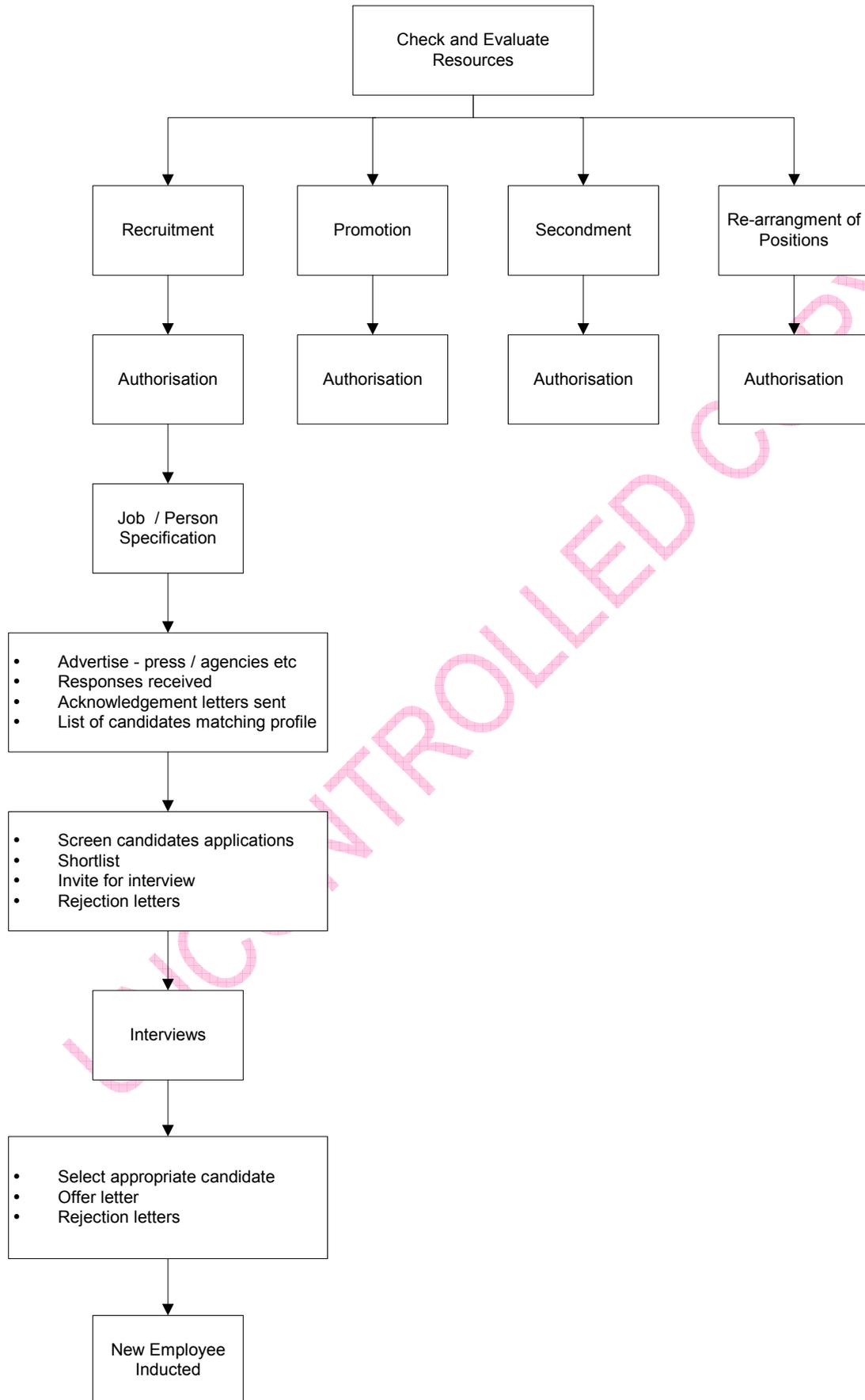
The Managing Director, in conjunction with the Human Resources Manager and the Appropriate Director(s) is responsible for ensuring the availability of necessary resources and to ensure that resources meet requirements.

Processes

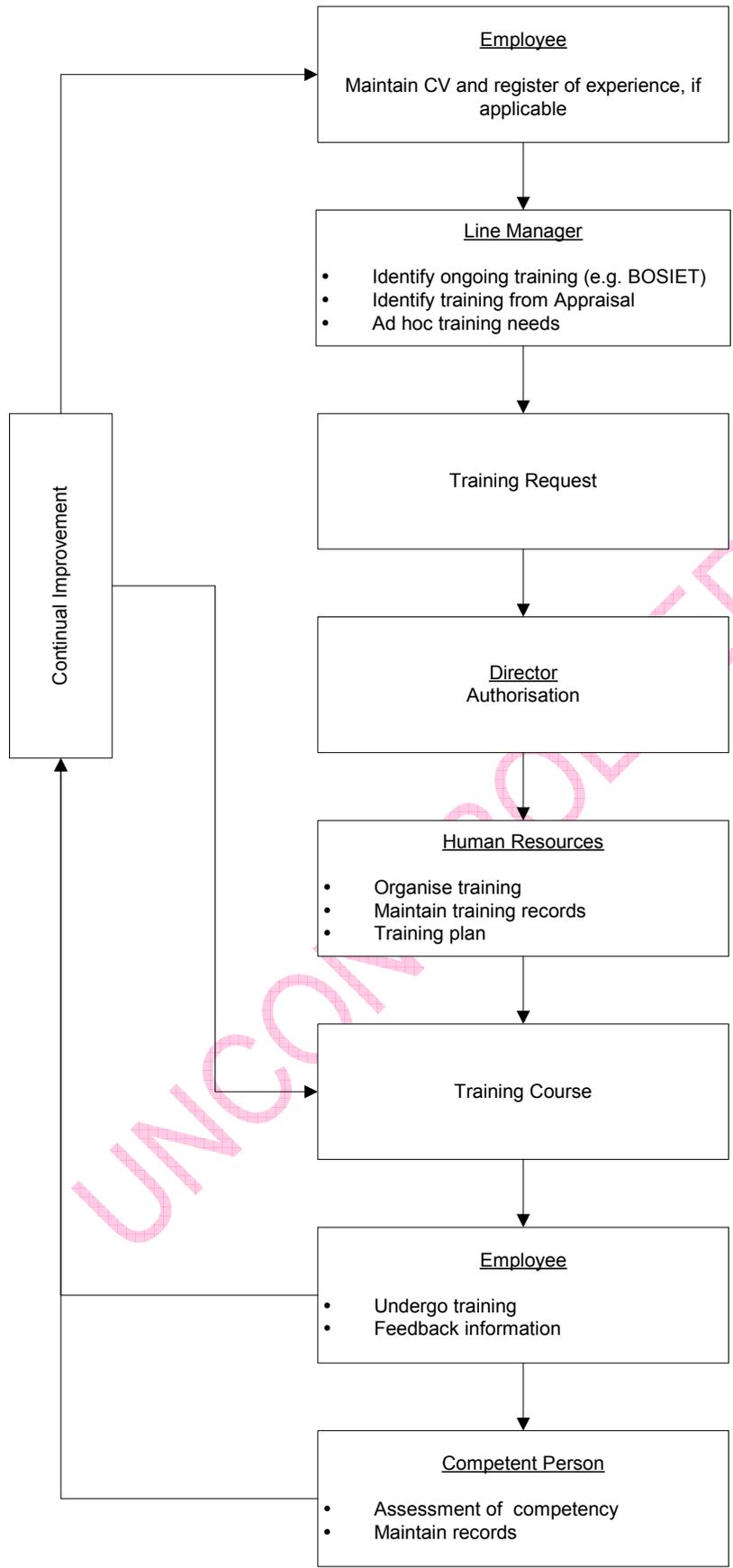
Process Chart 4.0: Overview of Resource Management



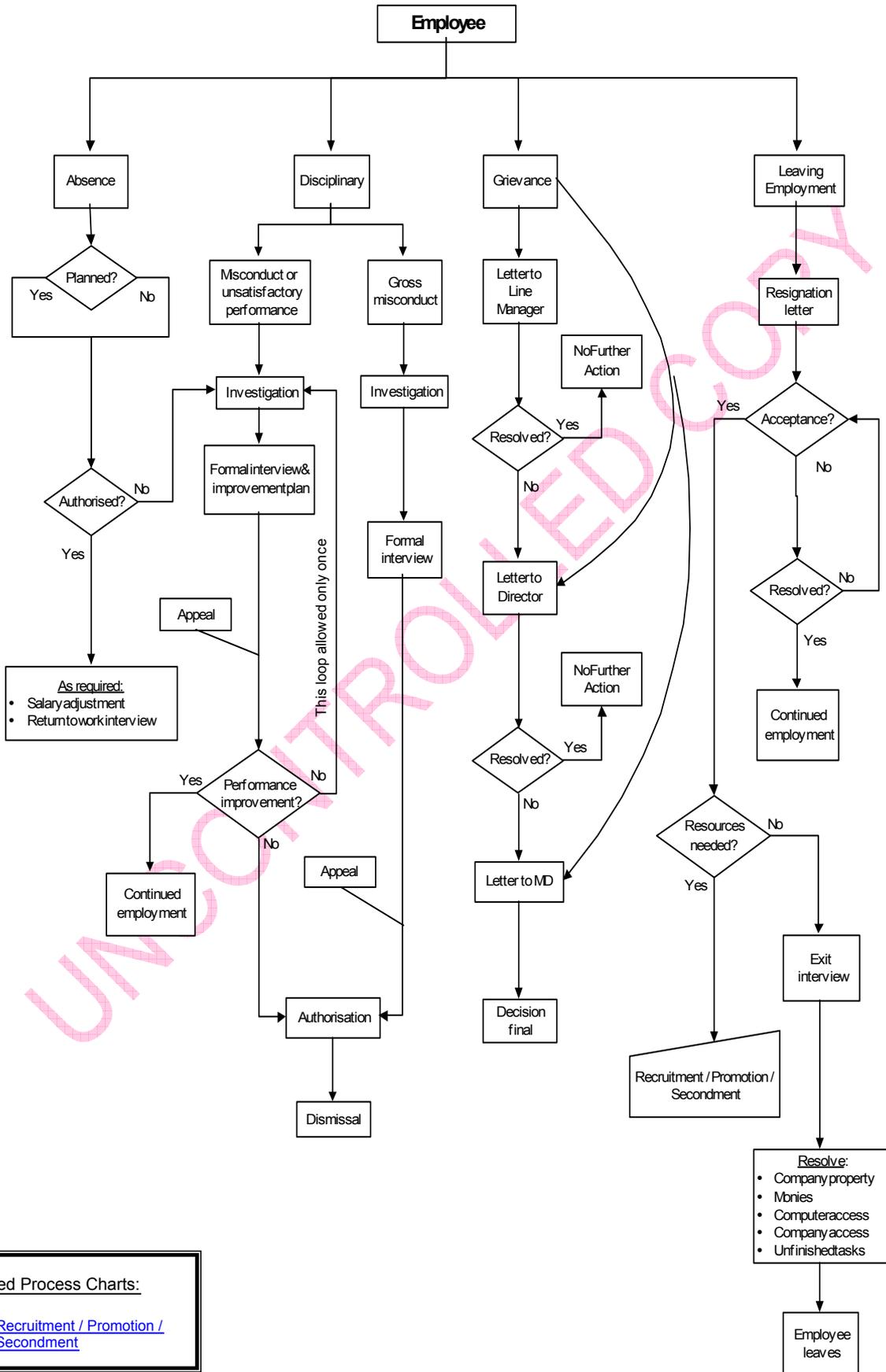
Process Chart 4.1: Recruitment / Promotion / Secondment



Process Chart 4.2: Training



Process Chart 4.3: Absence / Disciplinary / Grievance / Leaving Employment



Related Process Charts:

- [Recruitment / Promotion / Secondment](#)

PROCESSES SERIES 5: SERVICE REALISATION & PROVISION

Quality Objective

To ensure operations are adequately planned and controlled and undertaken using suitably competent staff, equipment and facilities in order to ensure compliance with specifications and to satisfy the needs and expectations of interested parties. The operations carried out are planned and monitored in order to comply with contractual requirements. Suitable records are kept of training and competence of people and the relevant statutory and regulatory requirements.

To identify and trace products and services from conception through all stages of development, despatch and use to ensure correct use and allow efficient corrective and preventive action, where necessary to improve the effectiveness and efficiency of the realisation process.

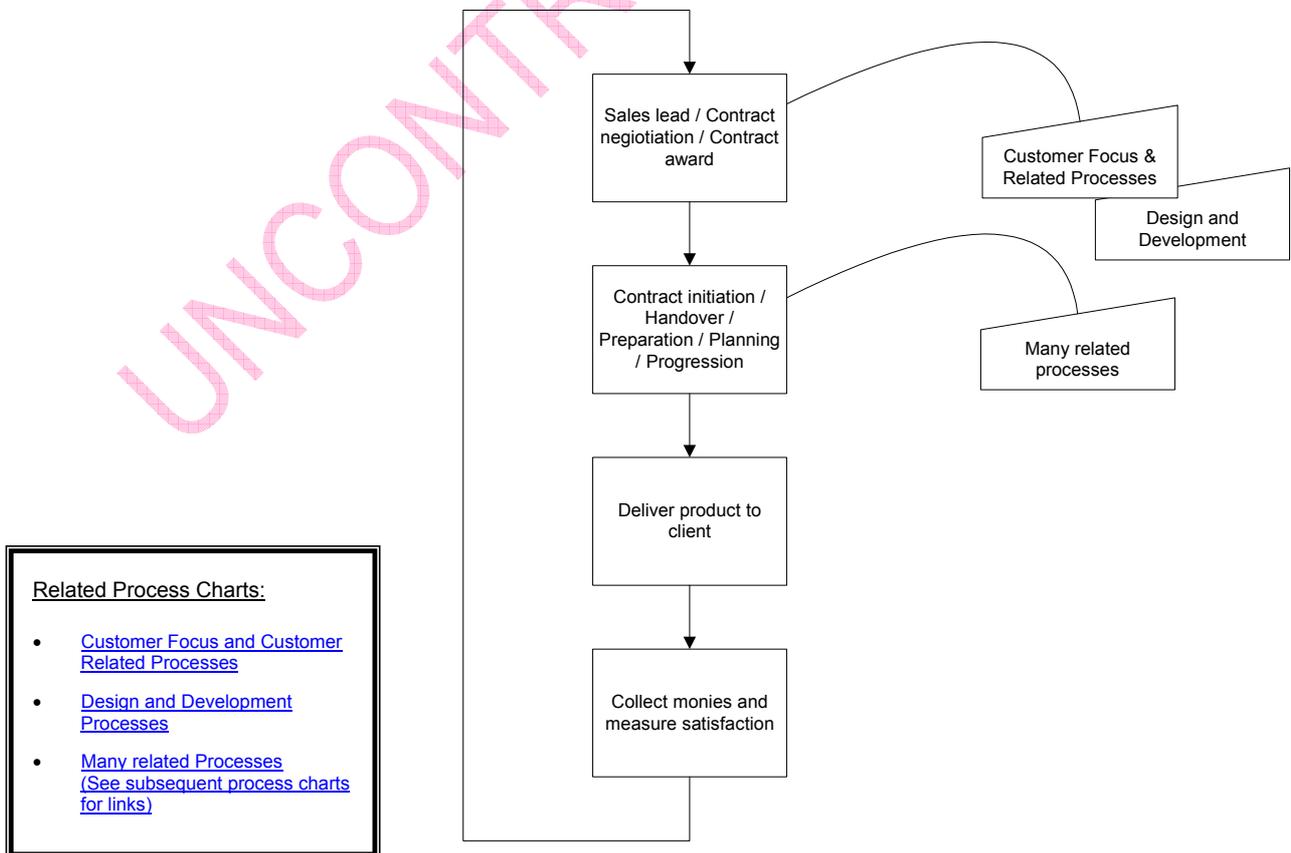
To preserve the conformity of the service and product including identification, handling and protection and all that applies to the constituent parts of the service of product.

Responsibility

It is the responsibility of the Divisional Director, in conjunction with all process personnel to enable the traceability of the products and services, to preserve its conformity, to complete documentation in accordance with standard procedures and to maintain safety.

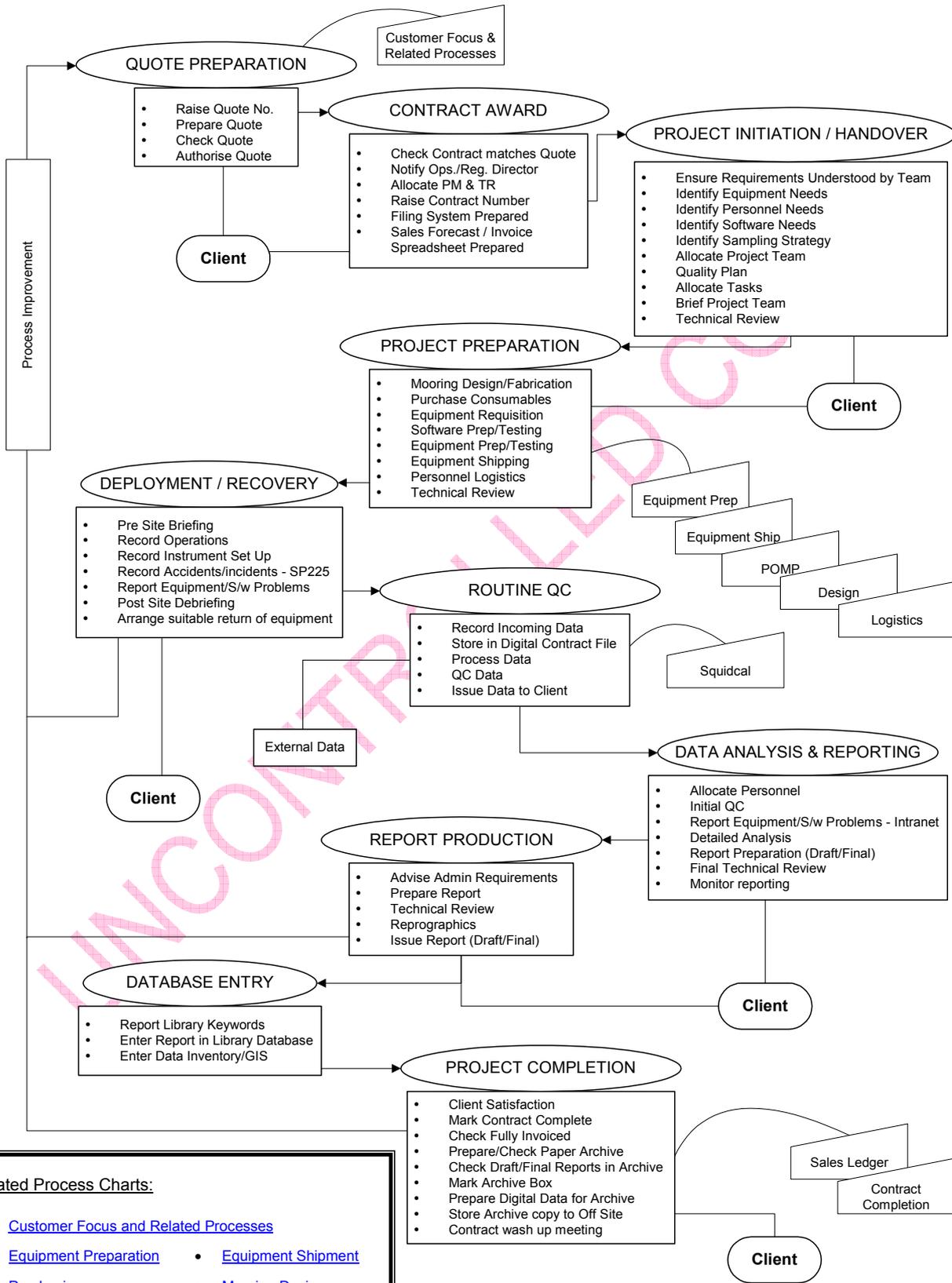
Processes

Process Chart 5.0: Overview of Service Realisation & Provision



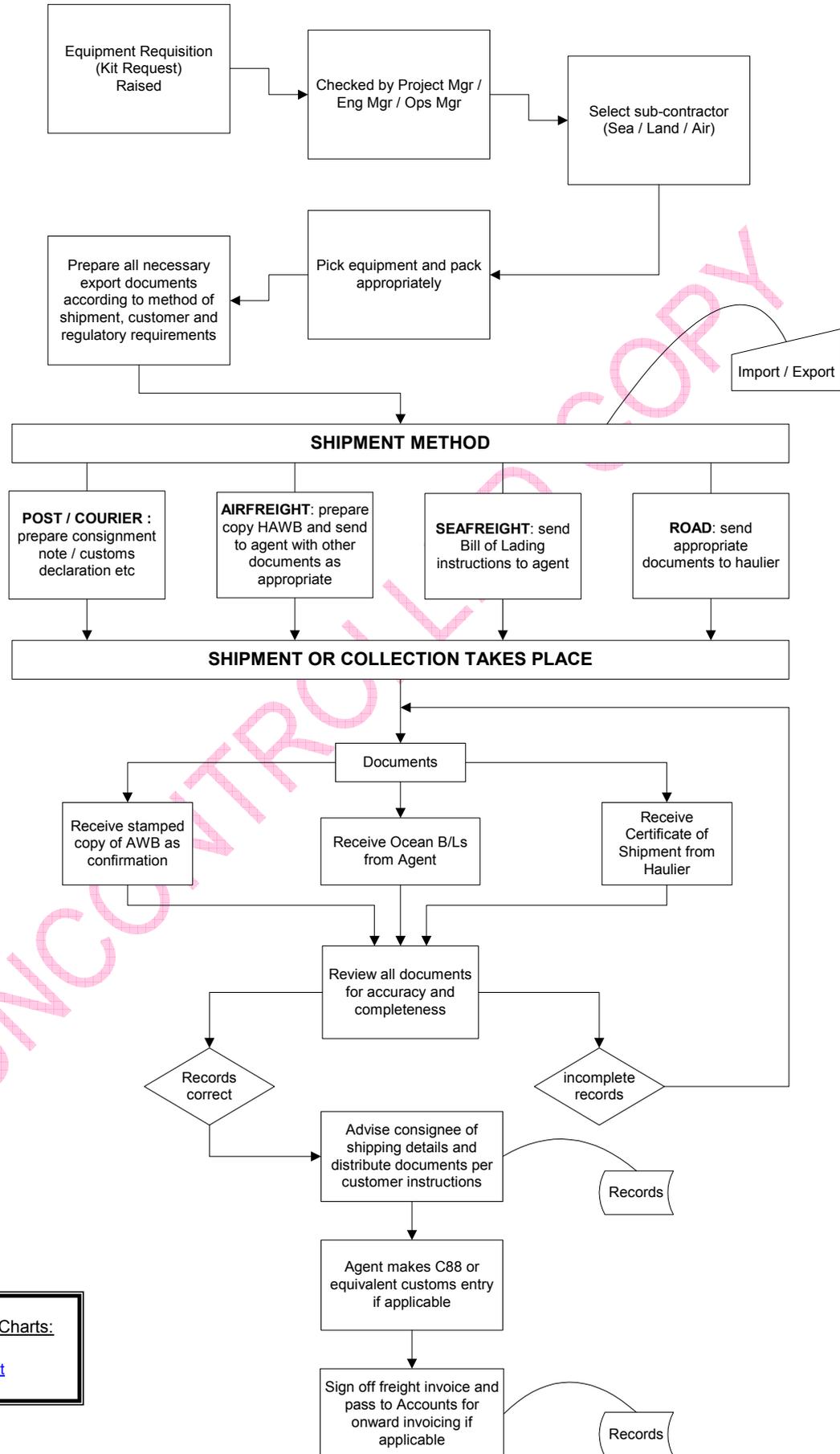
Process Chart 5.1: Seasense / Seasystems / Seadata / Structural Monitoring

Some elements common to all Divisions. Bullet Points are considerations. See also [Processes Series 7](#)



- Related Process Charts:**
- [Customer Focus and Related Processes](#)
 - [Equipment Preparation](#)
 - [Purchasing](#)
 - [Logistics](#)
 - [Sales Ledger](#)
 - [Equipment Shipment](#)
 - [Mooring Design](#)
 - [Squidcal](#)
 - [Contract Completion](#)

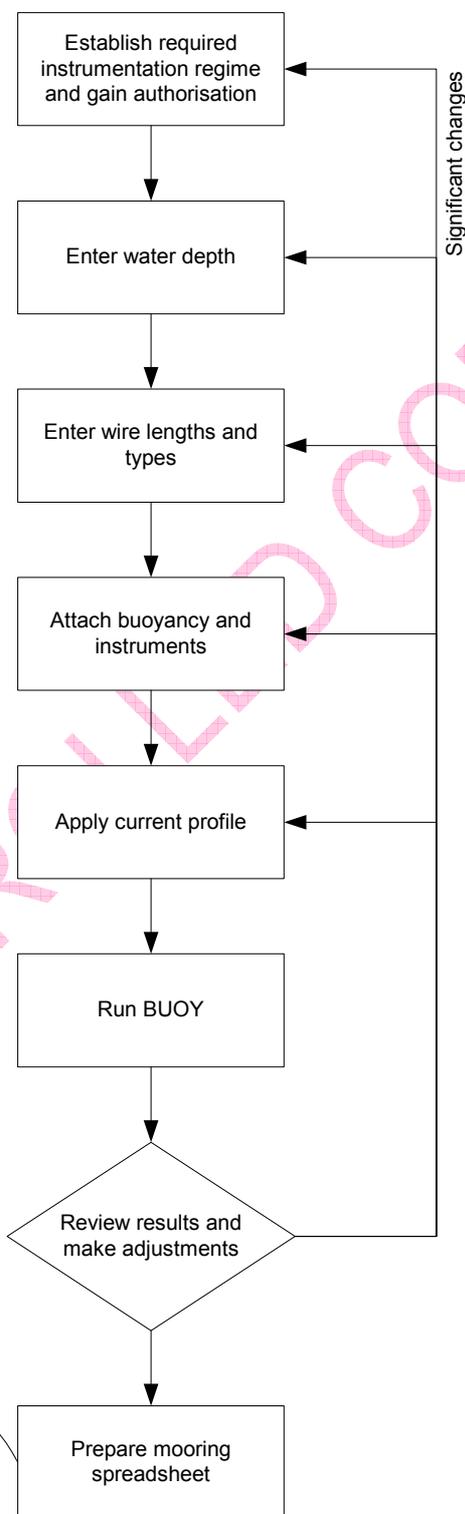
Process Chart 5.4: Equipment Shipping



Related Process Charts:

- [Import / Export](#)

Process Chart 5.5: Mooring Design

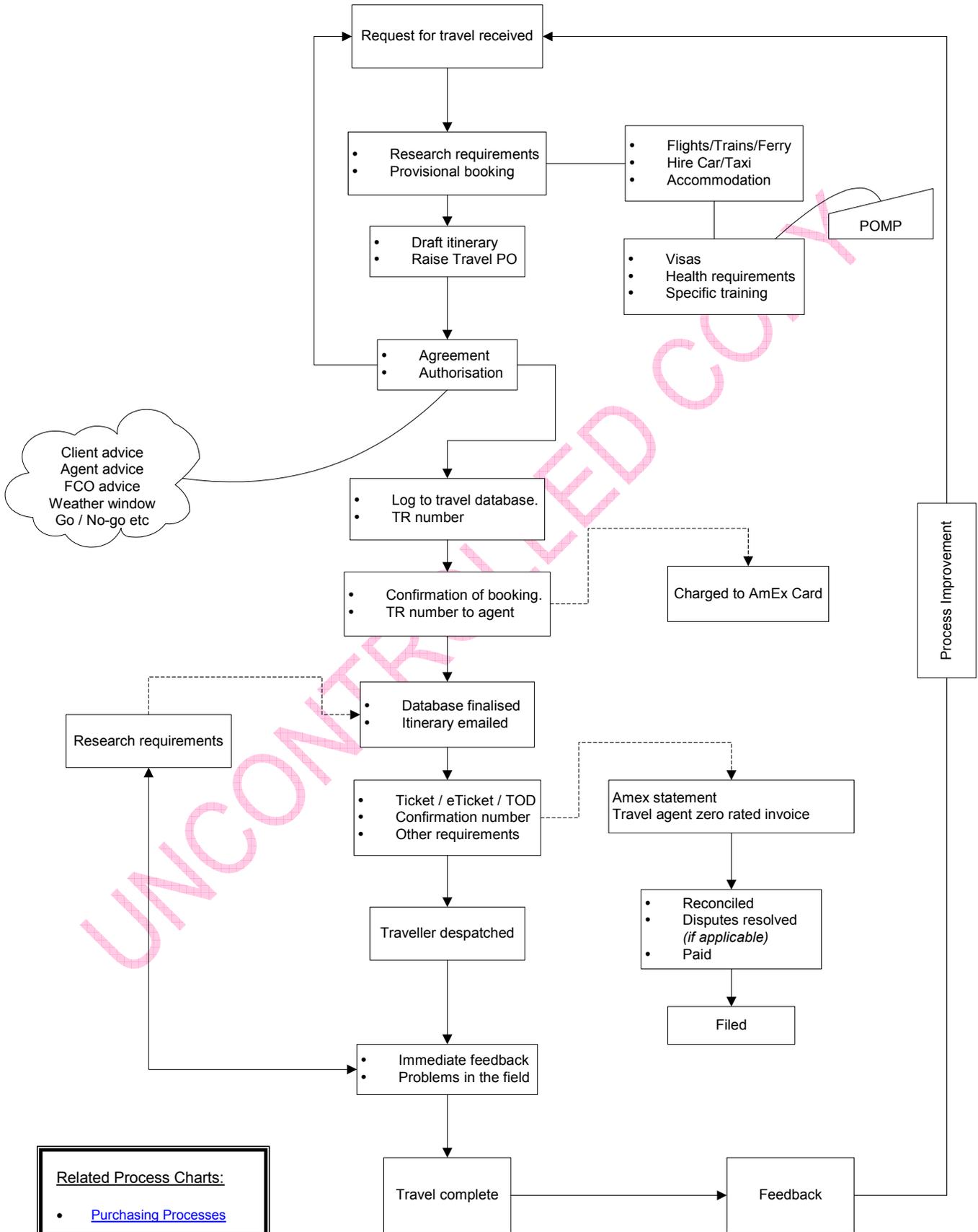


Purchasing Processes

Related Process Charts:

- [Purchasing Processes](#)

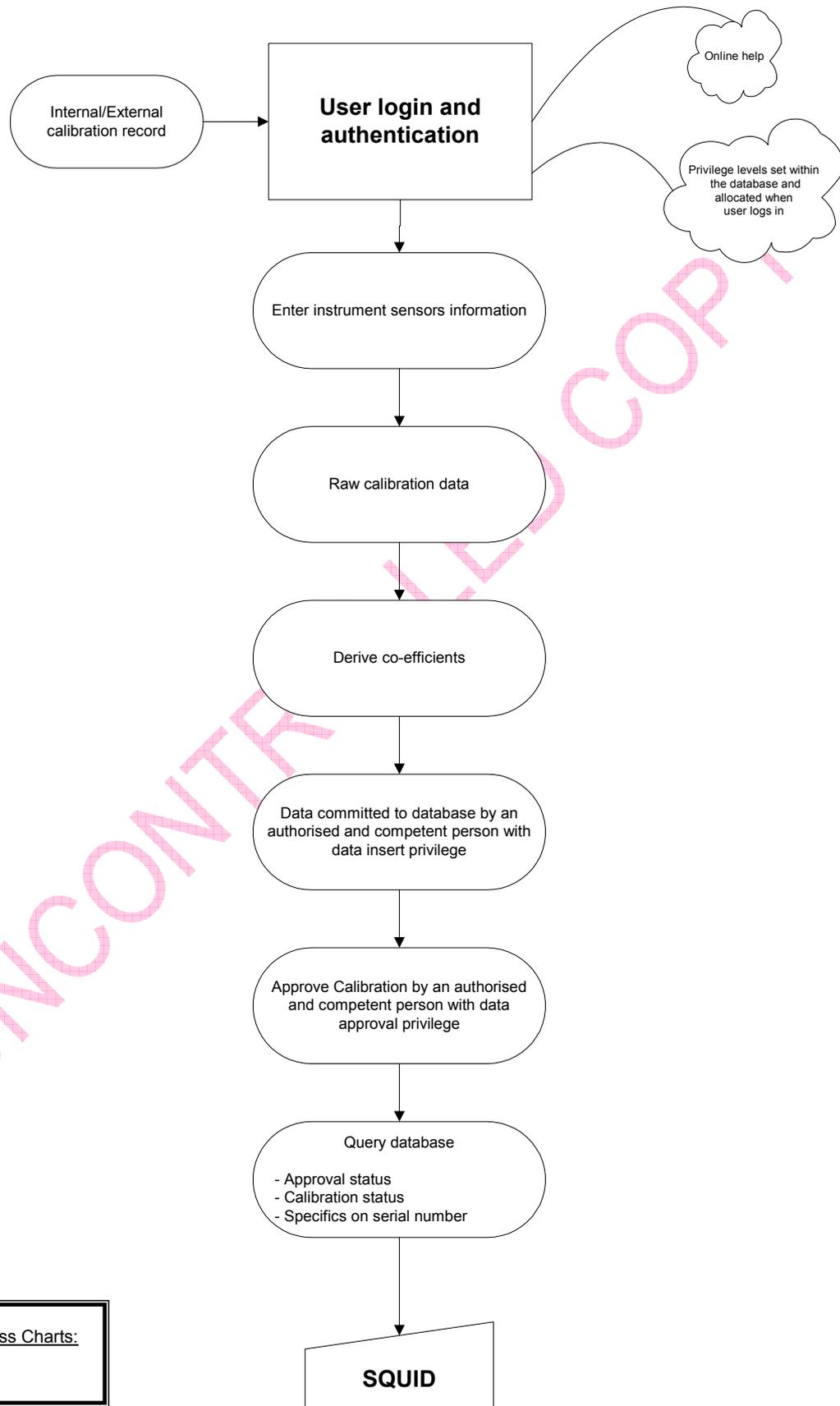
Process Chart 5.6: Logistics



Related Process Charts:

- [Purchasing Processes](#)

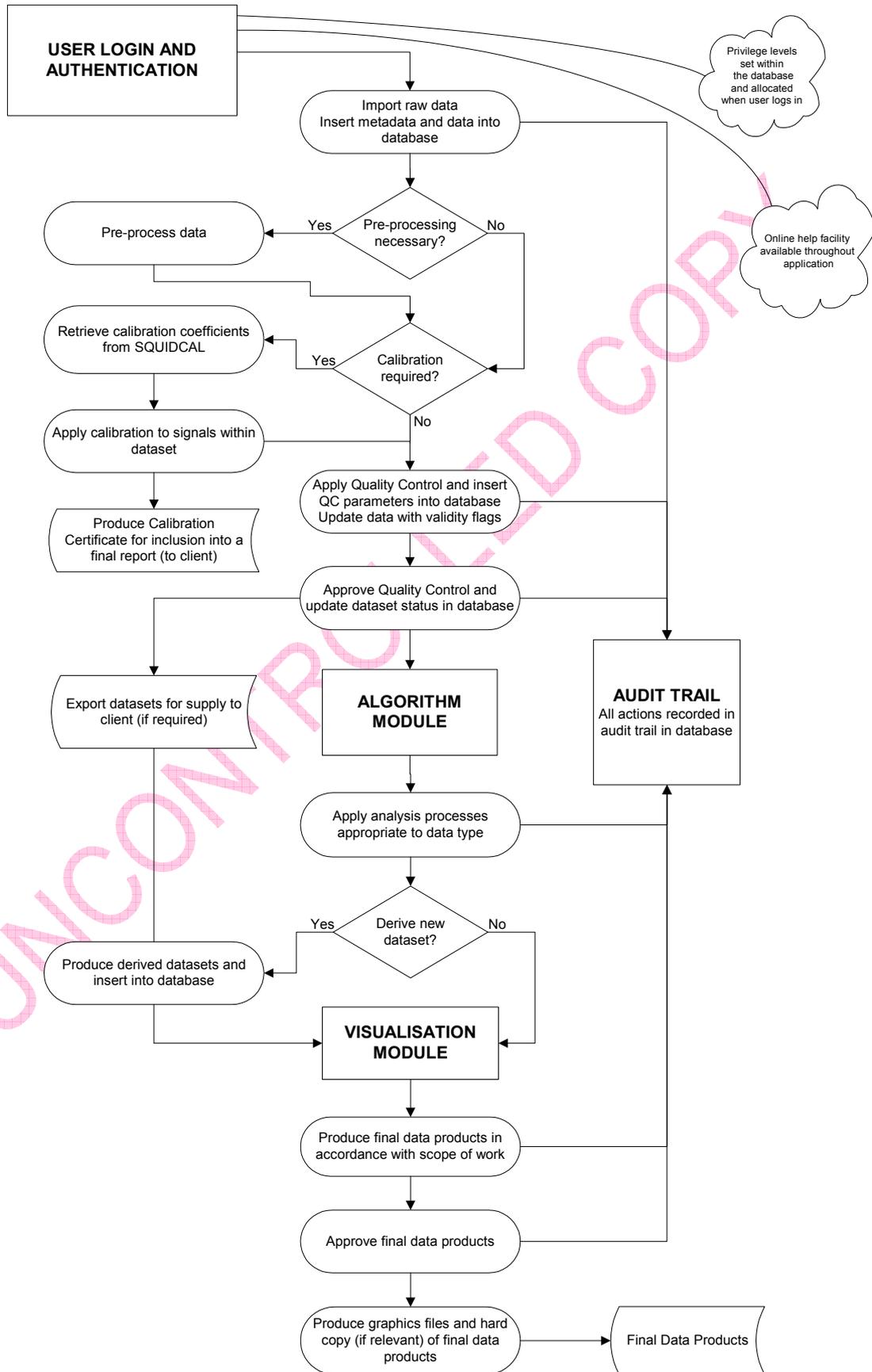
Process Chart 5.7: Squidcal



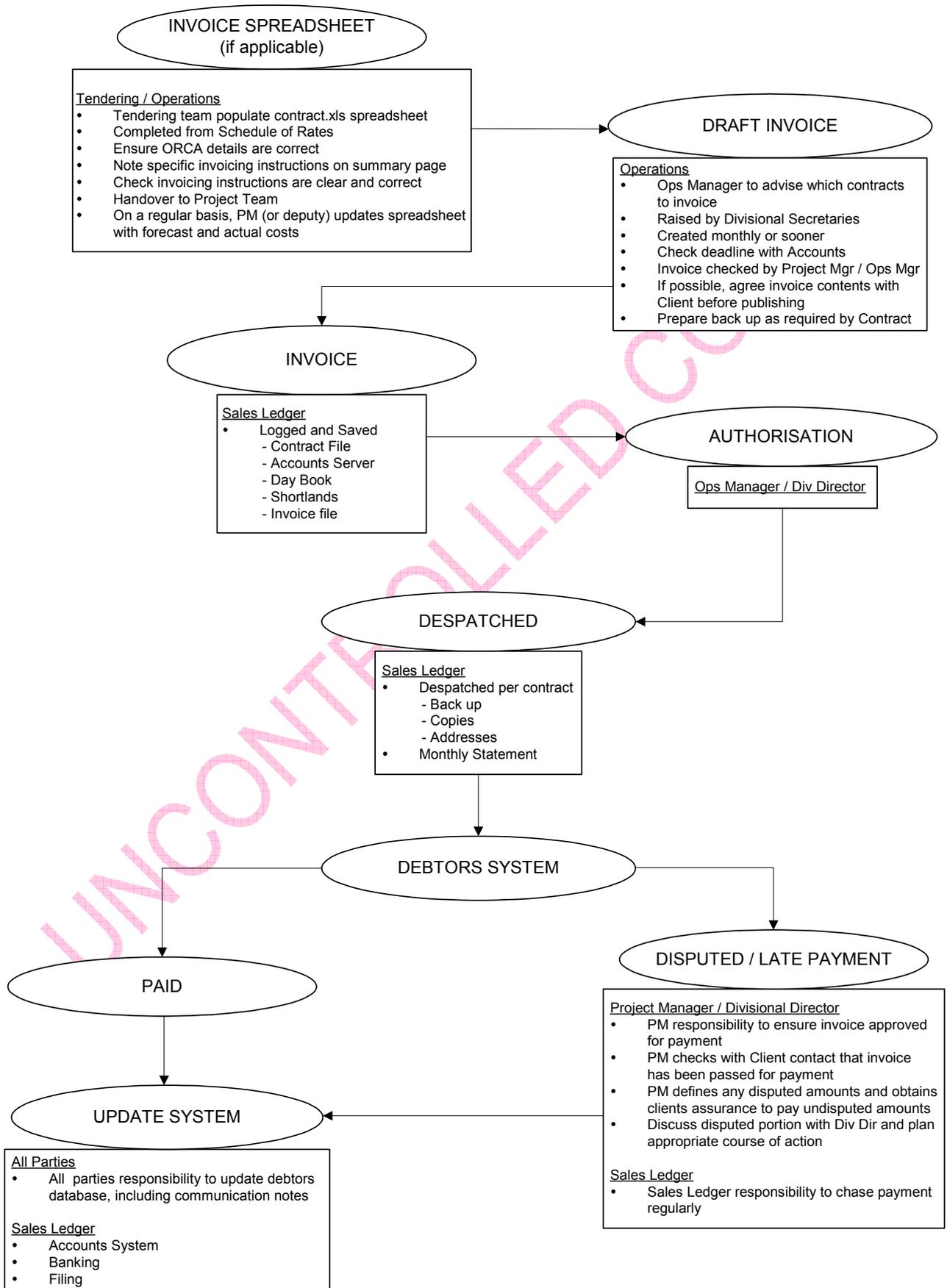
Related Process Charts:

- [Squid](#)

Process Chart 5.8: Squid

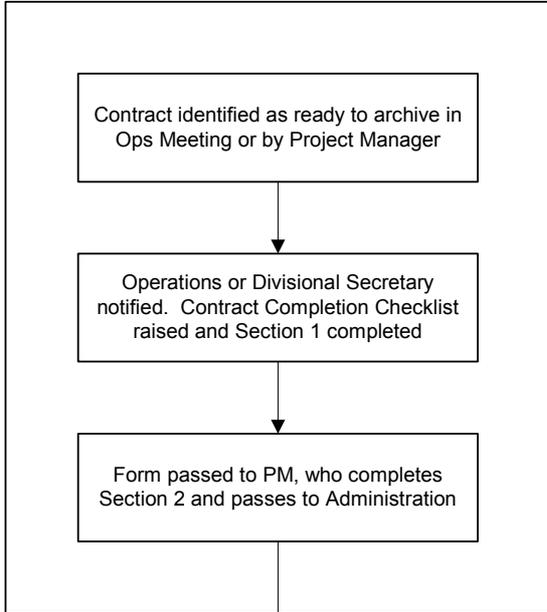


Process Chart 5.9: Sales Ledger

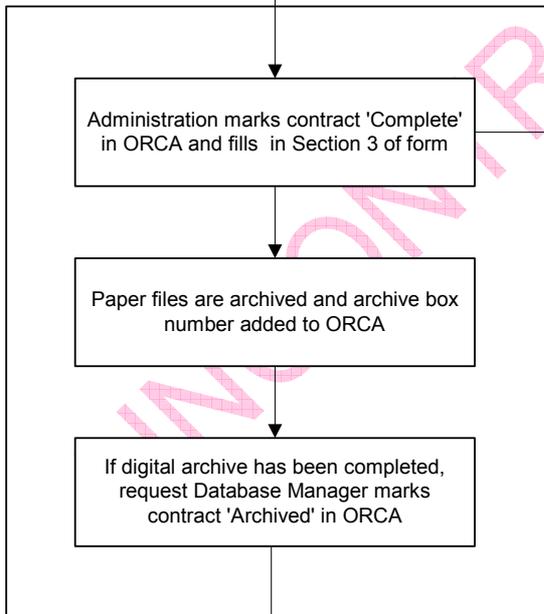


Process Chart 5.10: Contract Completion

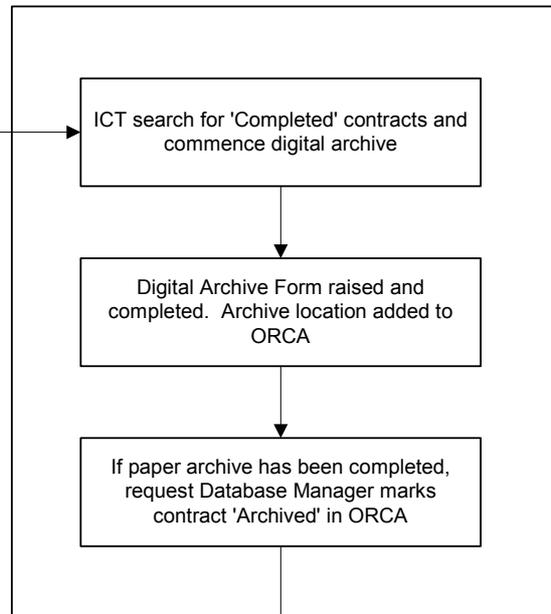
OPERATIONS



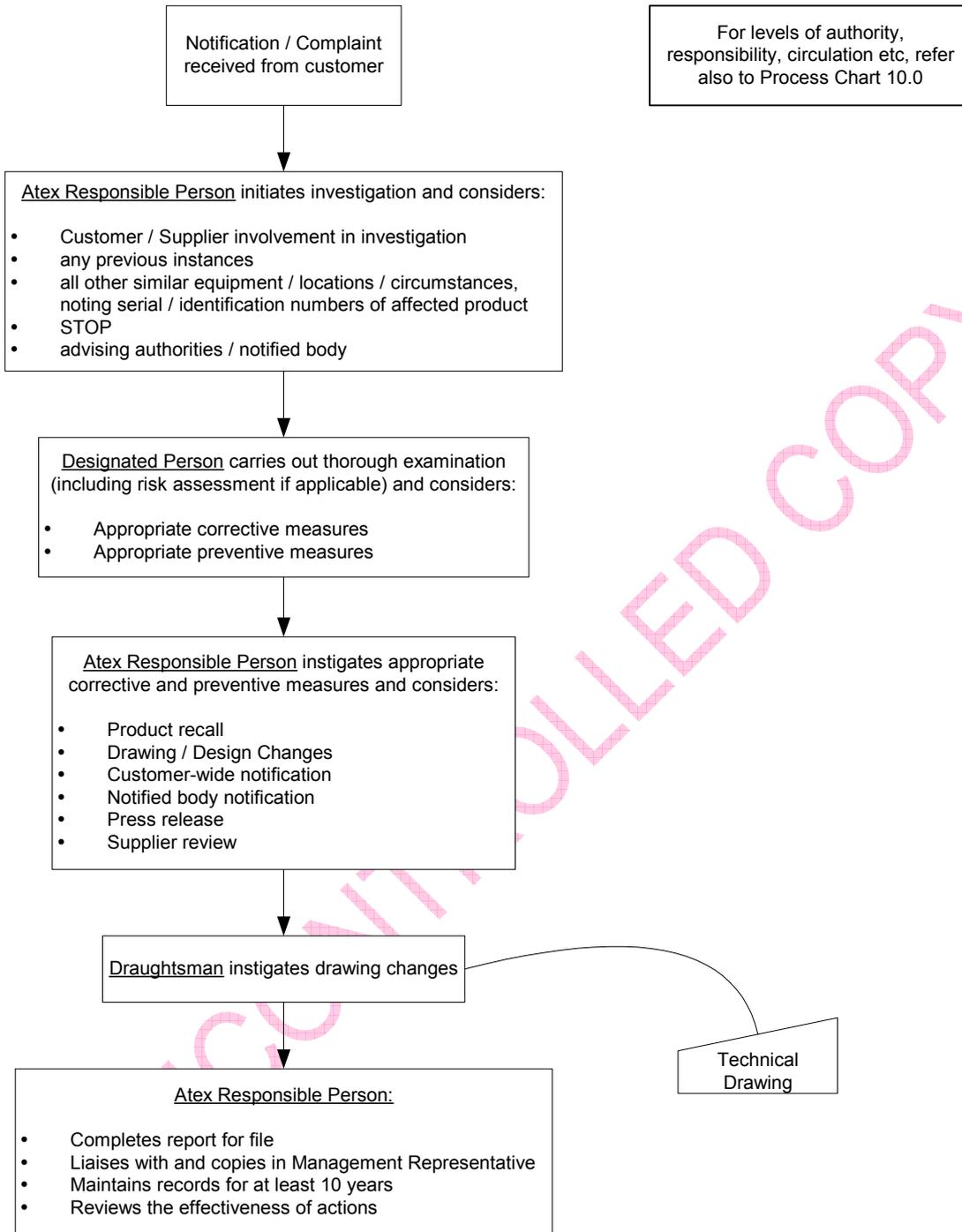
ADMIN



ICT



Process Chart 5.11: Handling of Delivered Non-Conforming Product



- Related Process Charts:**
- [Customer Complaints](#)
 - [Technical Drawing](#)

PROCESSES SERIES 6: CUSTOMER FOCUS & RELATED PROCESSES

Quality Objective

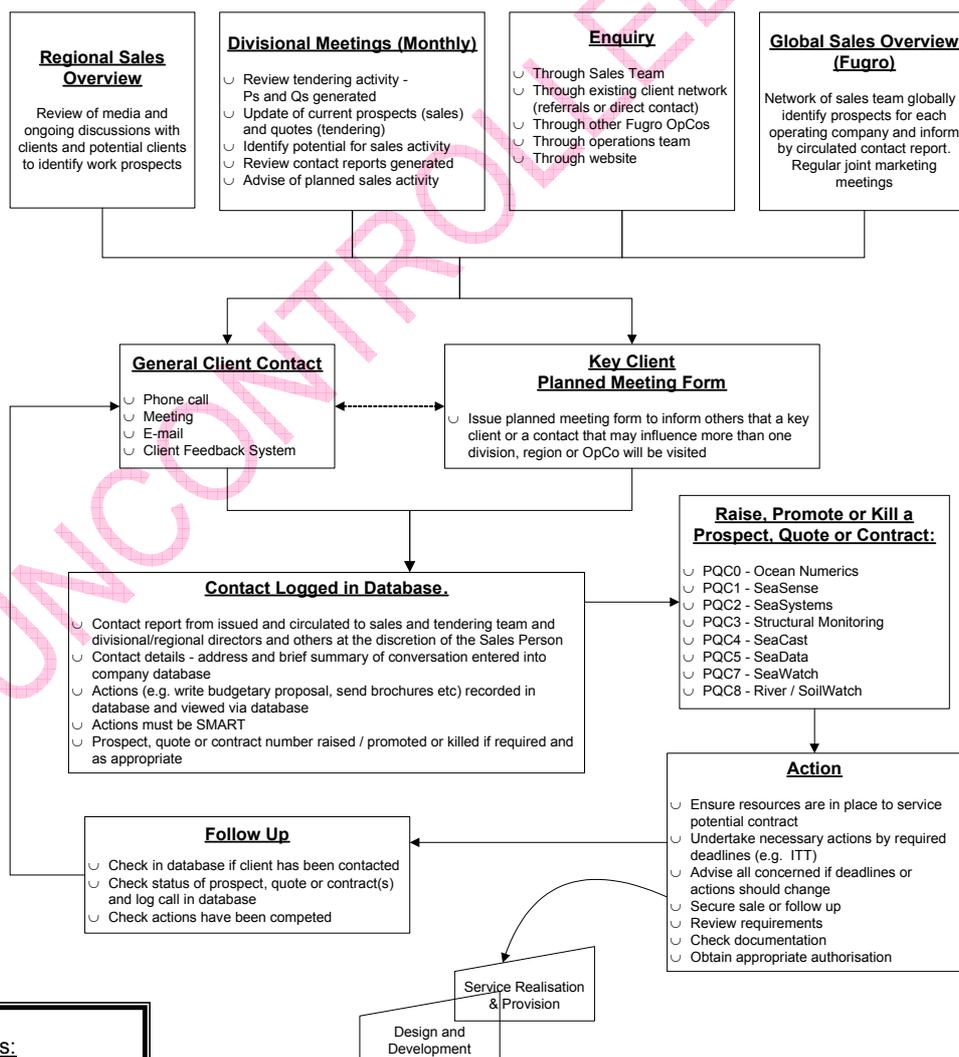
To ensure customer's needs and expectations are understood and may be met, products and services are adequately advertised internally and externally and order requirements are adequately defined and documented. In addition, all potential orders are reviewed at the enquiry and quotation stages, and again at sales order receipt ensuring that the organisation has the capability of meeting order requirements. Any differing requirements must be resolved. Obligations related to services, including statutory and regulatory are considered when determining those needs and expectations.

Responsibility

It is the responsibility of all personnel involved with customer related processes (especially Marketing and Sales) that products and services and customer needs and expectations are understood fully and communicated in order to ensure client satisfaction and that required products are fit for purpose.

Processes

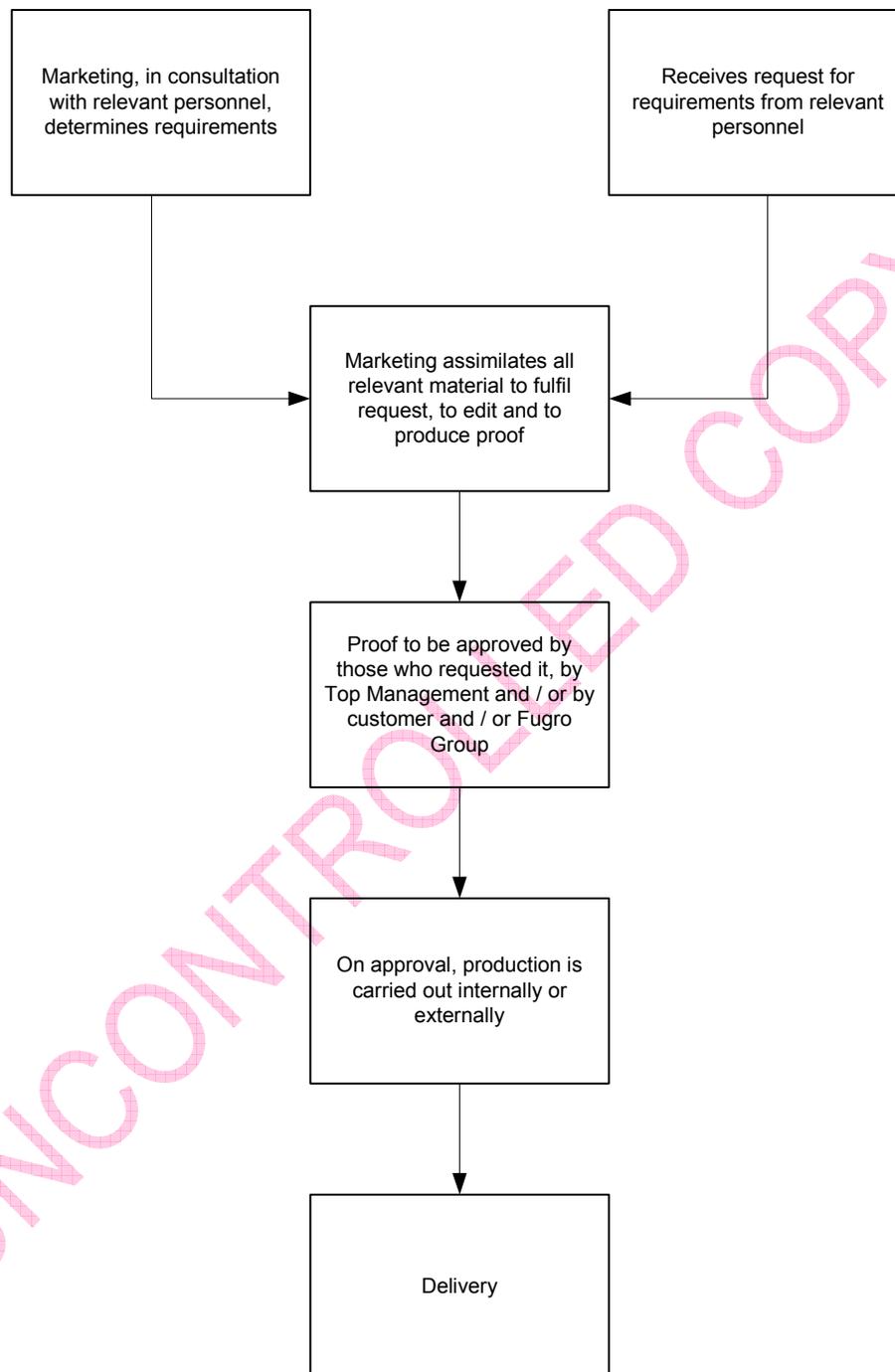
Process Chart 6.0: Overview of Sales



Related Process Charts:

- [Service Realisation and Provision](#)
- [Design and Development](#)

Process Chart 6.1: Overview of Marketing



PROCESSES SERIES 7: DESIGN & DEVELOPMENT

Quality Objective

To ensure customer's needs and expectations are understood, verified, validated and carried out when designing and developing new products for the customer. All obligations related to service or product, including statutory and regulatory are considered when determining those needs and expectations.

Responsibility

It is the responsibility of the Development Team to determine the design and development stages and the steps in review, verification and validation as appropriate of the system design and development to ensure internal customer satisfaction. It is also their responsibility to ensure effective management of communications between the different groups involved in the design and development as well as a clear assignment of responsibility.

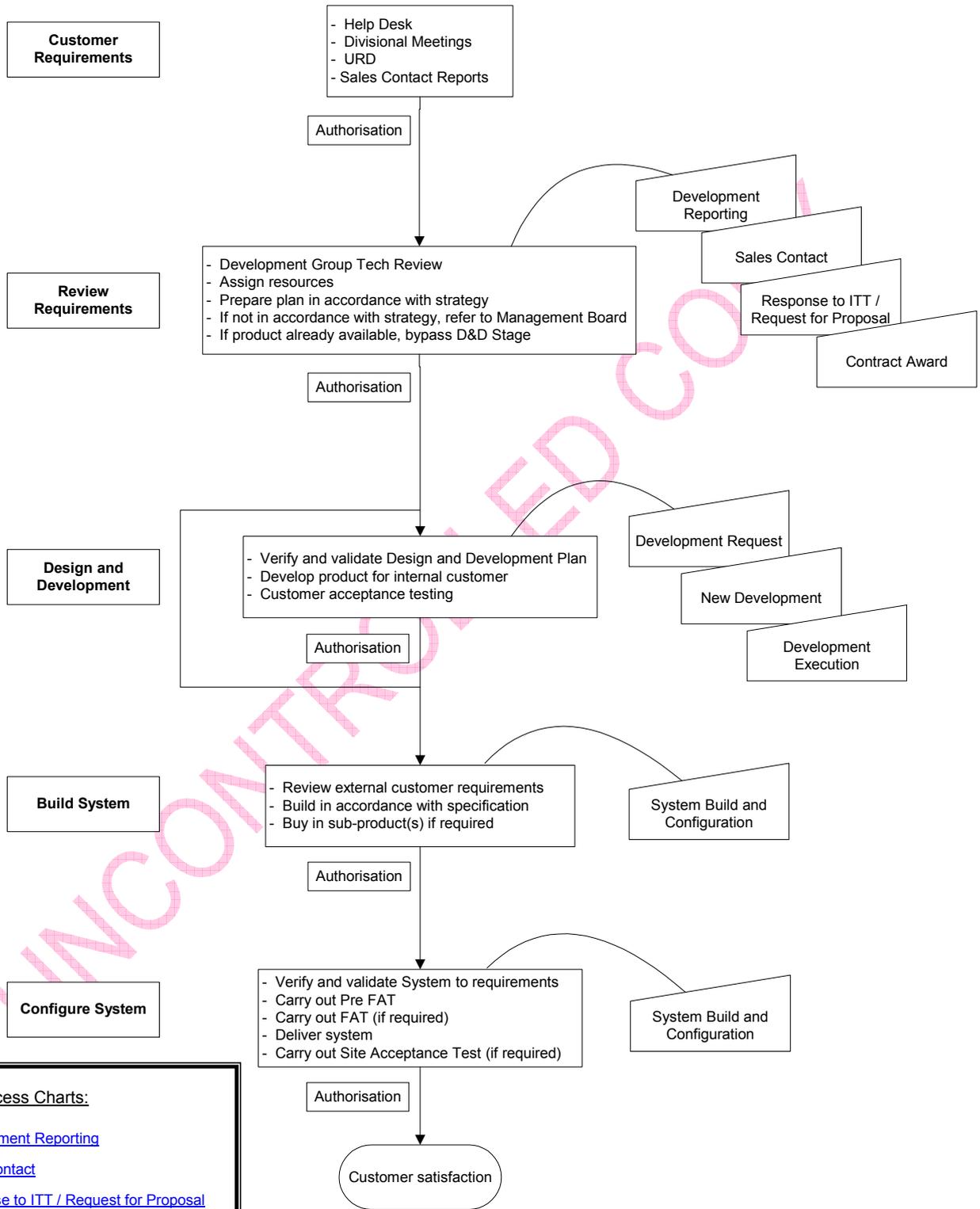
It is the responsibility of the Operational Divisions to build and configure the systems, incorporating, if appropriate, any new, systems acceptance tested, design and development products to ensure external customer satisfaction.

Definitions

Document	Purpose
Closeout Checklist	Includes: Lessons Learned Follow Up Actions
Component Design Document (CDD)	The detailed technical specification and design of the components of the system.
Component Test Certificate (CTC)	Test certificate for an individual component ensuring compliance with the CDD. Approved by Development Project Manager.
Concept Document	To propose or highlight an idea, and/or to develop an understanding with the customer of their needs and potential current and future solutions
Customer Acceptance Test Certificate	Test Certificate confirming conformity of system with URD. Approved by internal customer.
Factory Acceptance Test (FAT) Certificate	Test Certificate confirming conformity with Customer's contractual requirements. Approved by external customer.
Functional Specification (FS)	To develop with a customer the outline specification for the functionality of a new product or upgrade or change to an existing document. Includes the business case for the work
Project Mandate	Authorisation to proceed with specified task. Must refer to specific process document revisions
Project Plan	Resourcing, timetabling and budget for the project. (e.g. Gantt Chart)
System Requirements Document (SRD)	The technical design of the system/product at the highest level including description of the components into which the design shall be broken.
Tech Spec (TS)	"Tech Specs" used for inclusion in tenders, sales work, etc include outline details for the functionality of a product.
Technical Instruction (TI)	Addition to Tech Spec providing further information on the product or service to support tendering and sales teams. Not for release outside Fugro GEOS.
Technical Manual	Detailed technical manual for engineers use. May contain sections, which are not released outside Fugro GEOS.
User Guide	Instructions for the "normal" end user. To enable standard installation and use of the product.
User Requirements Document (URD)	The detailed specification by the user of the requirements for a new product or change(s) to an existing product. The document is provided as a series of specific, unambiguous requirements, together with prioritisation.

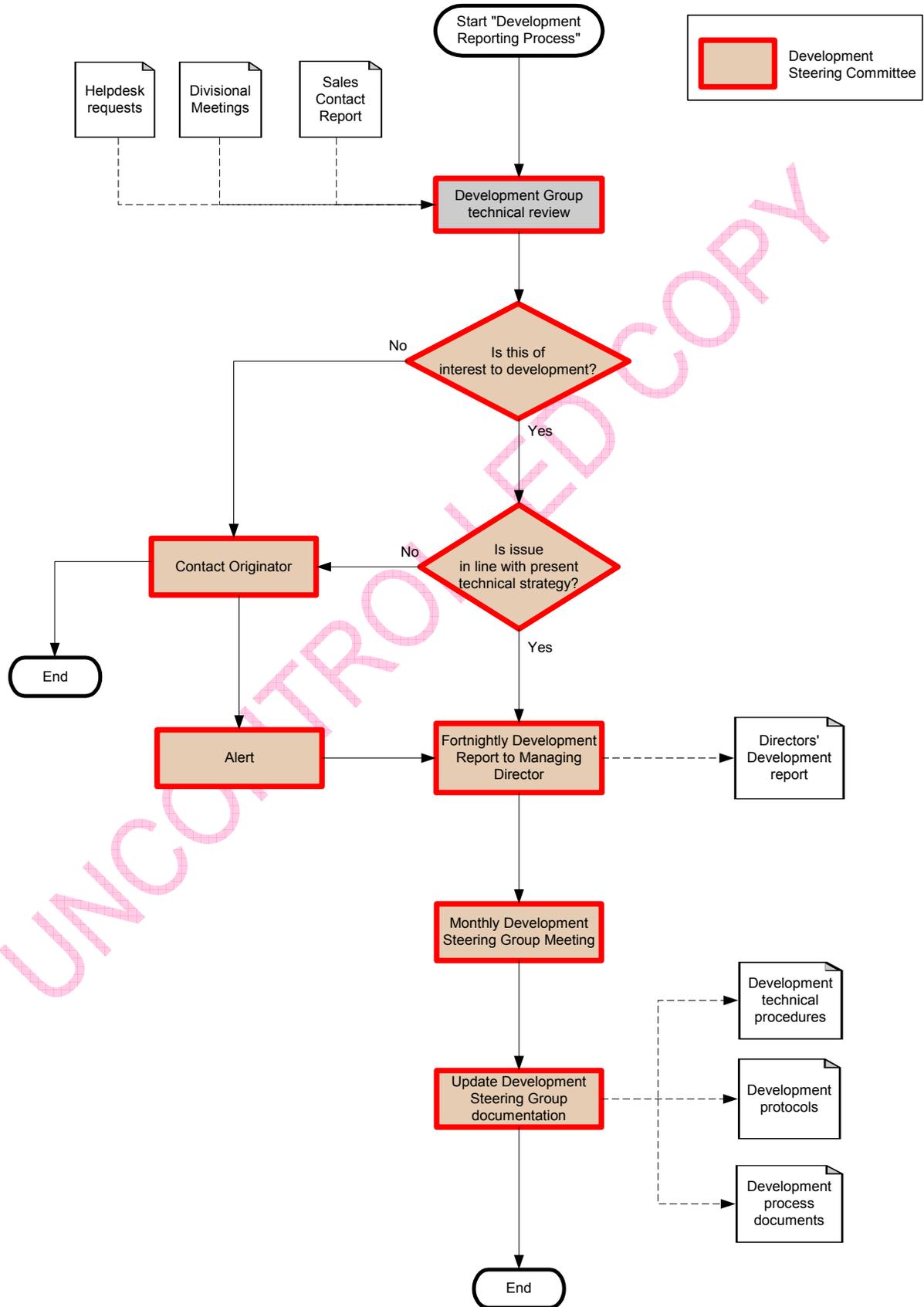
Processes

Process Chart 7.0: Overview of Design & Development

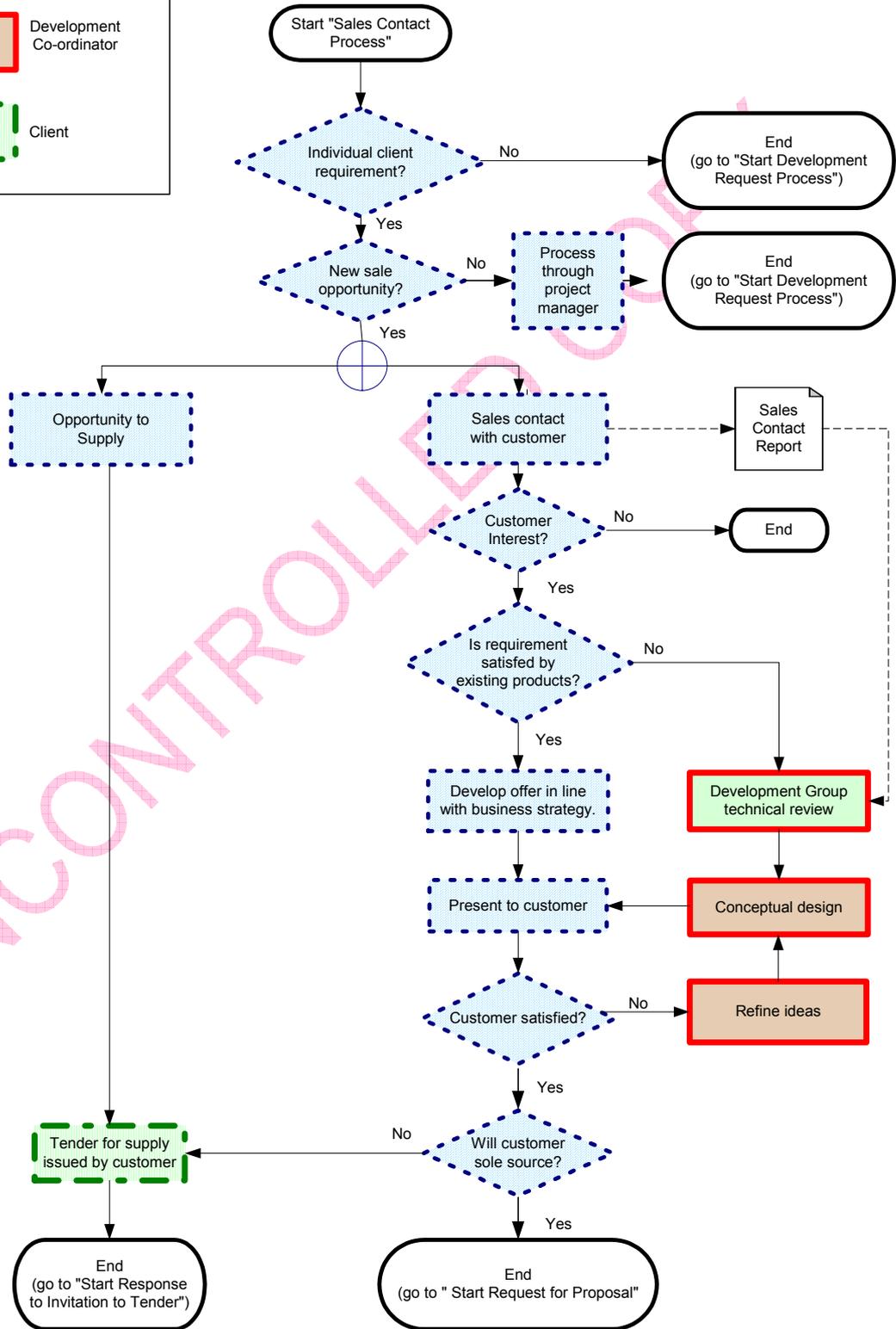
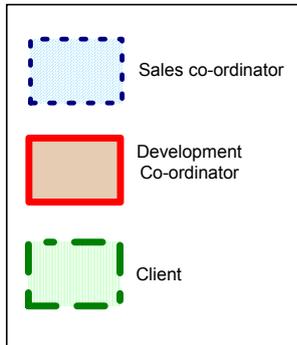


- Related Process Charts:**
- [Development Reporting](#)
 - [Sales Contact](#)
 - [Response to ITT / Request for Proposal](#)
 - [Contract Award](#)
 - [Development Request](#)
 - [New Development](#)
 - [Development Execution](#)
 - [System Build and Configuration](#)

Process Chart 7.1: Development Reporting

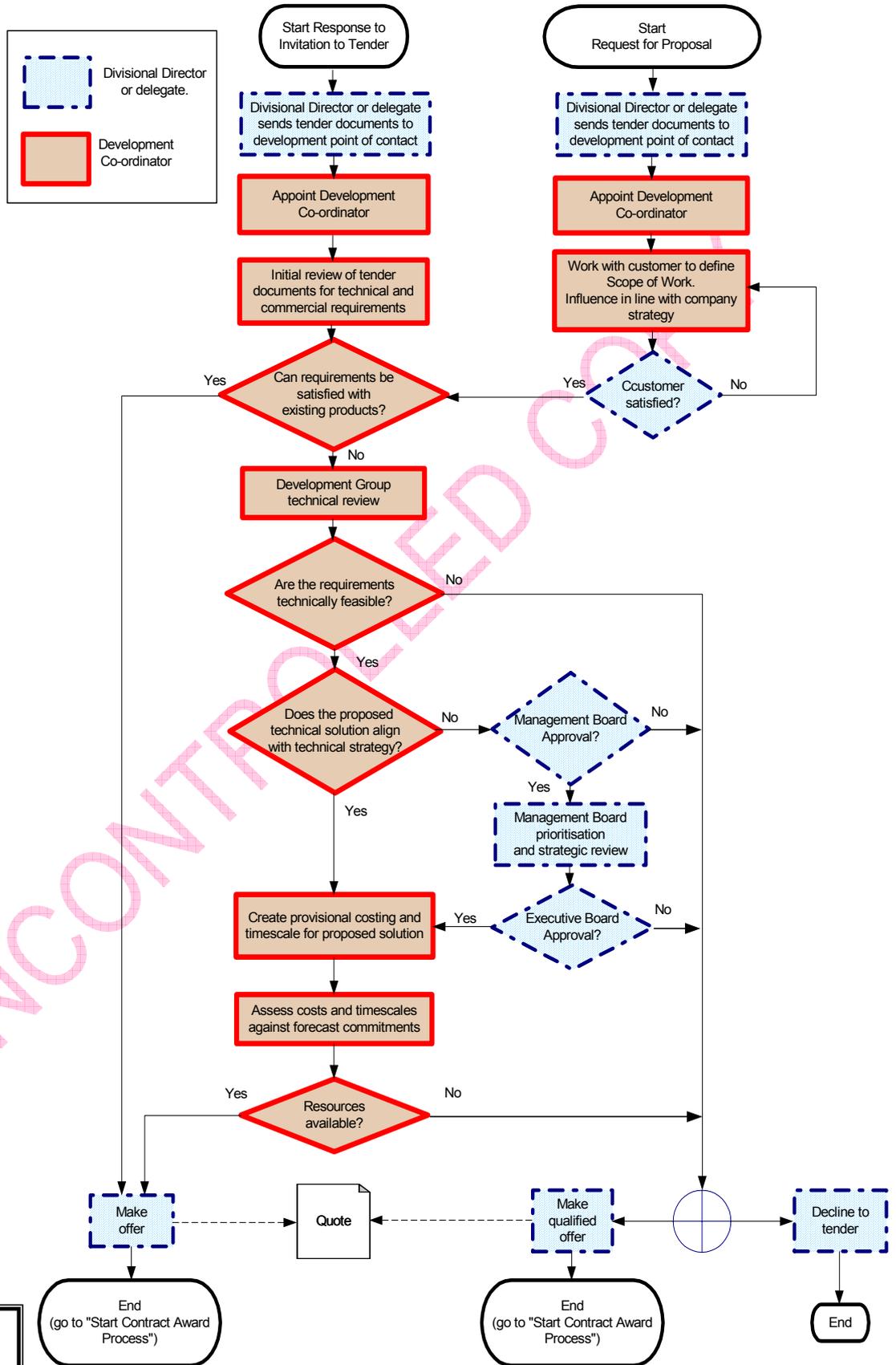


Process Chart 7.2: Sales Contact



- Related Process Charts:**
- [Response to ITT / Request for Proposal](#)
 - [Development Request](#)

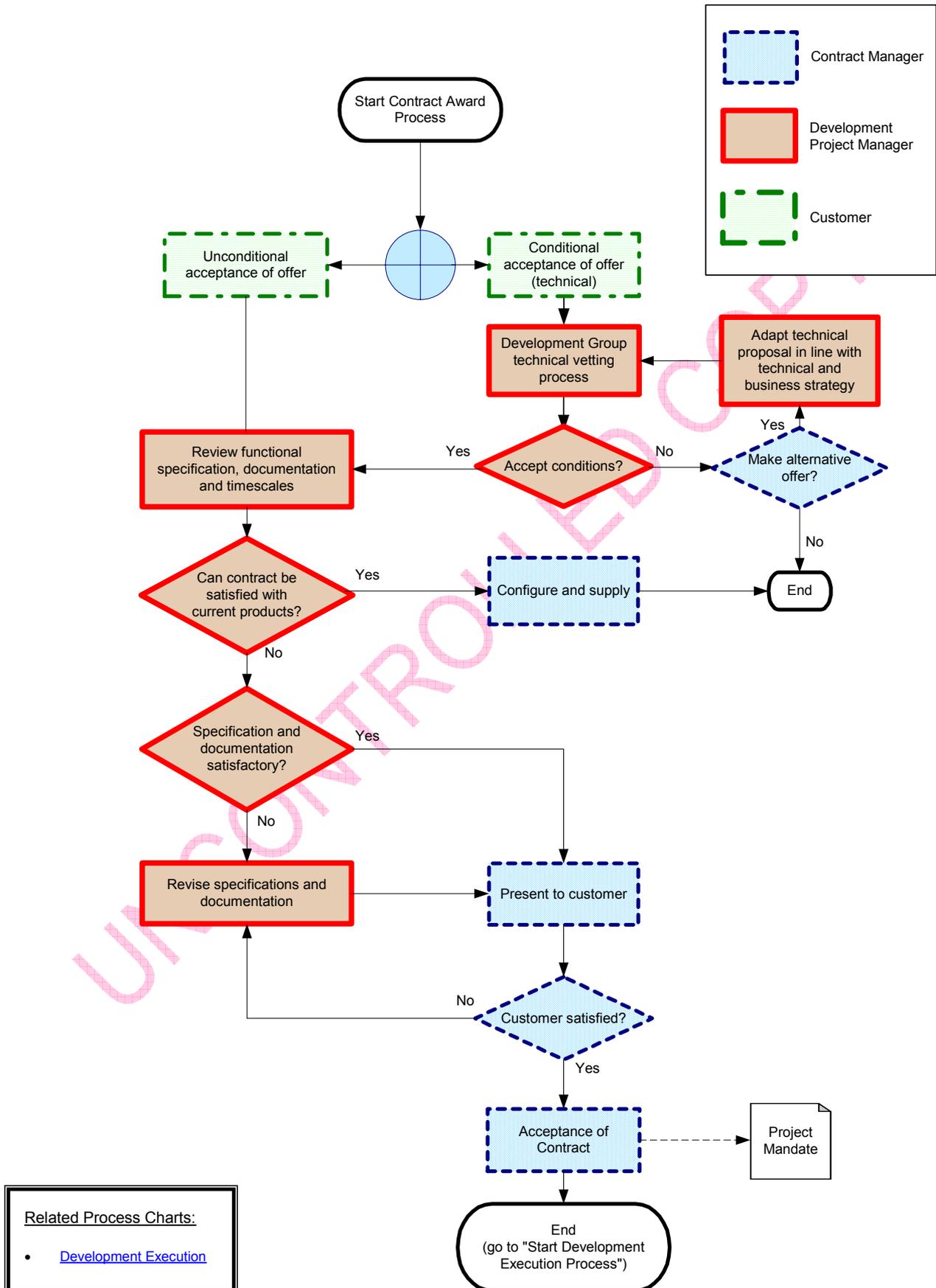
Process Chart 7.3: Response to Invitation to Tender / Request for Proposal



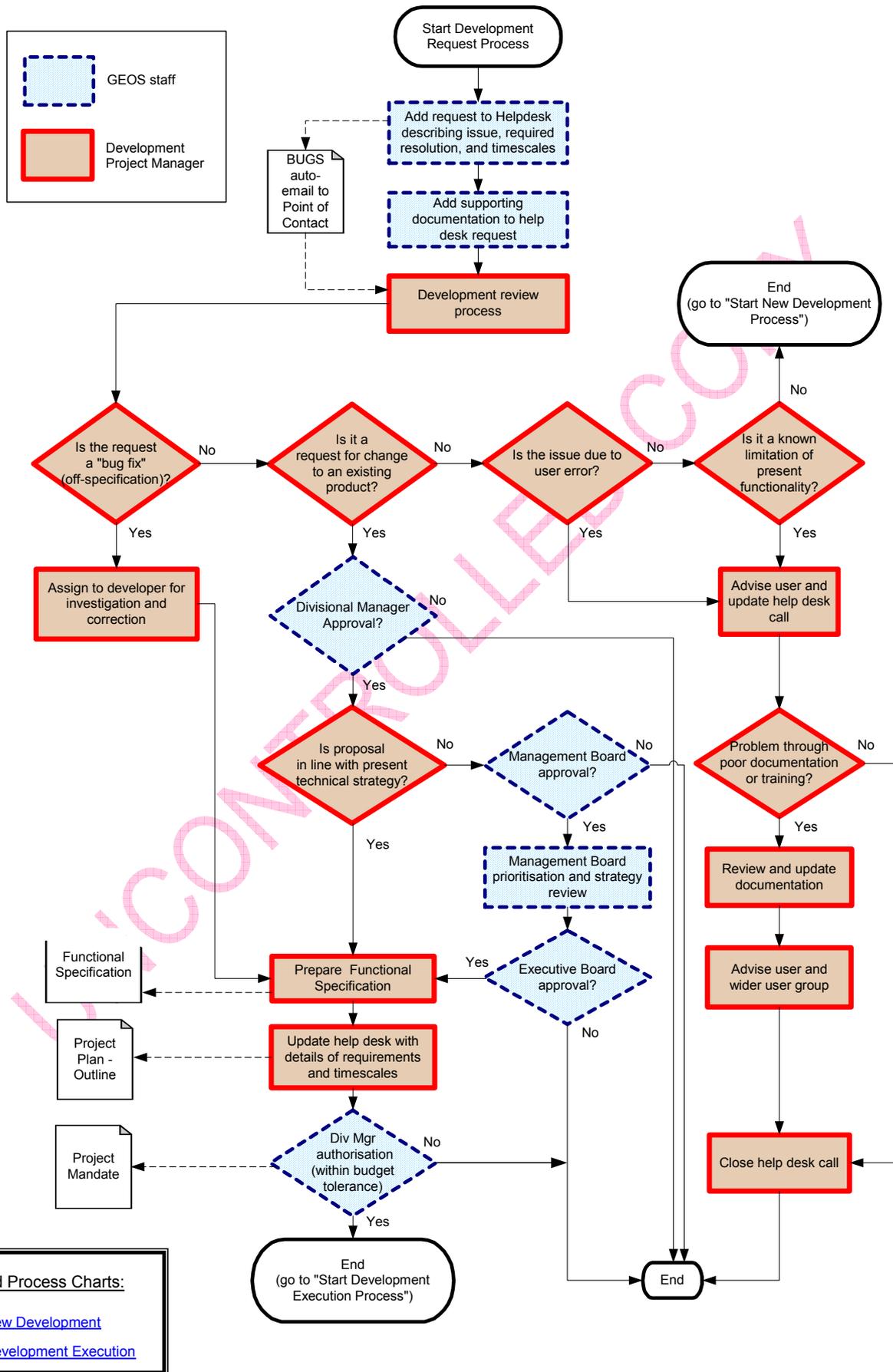
Related Process Charts:

- [Contract Award](#)

Process Chart 7.4: Contract Award



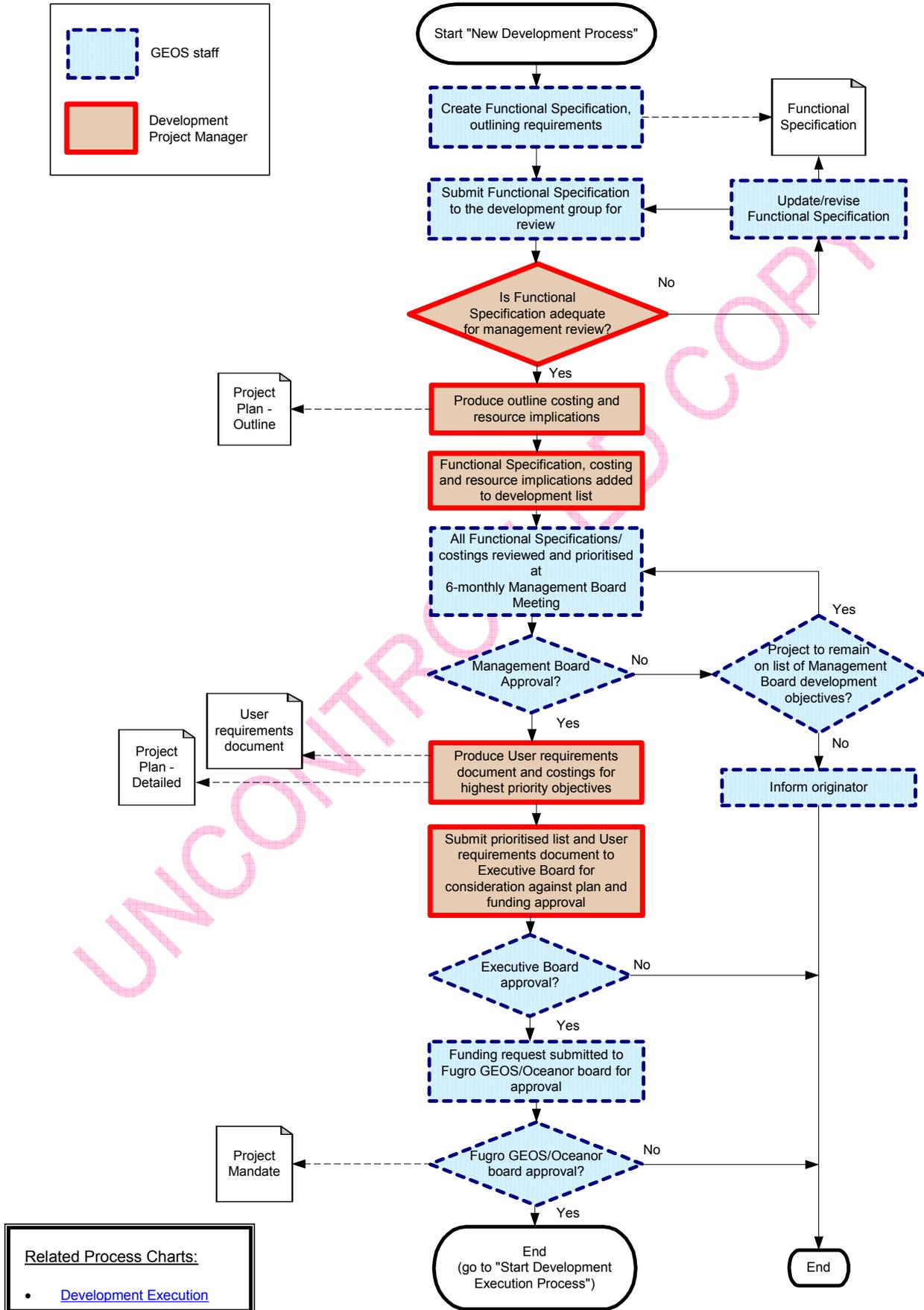
Process Chart 7.5: Development Request



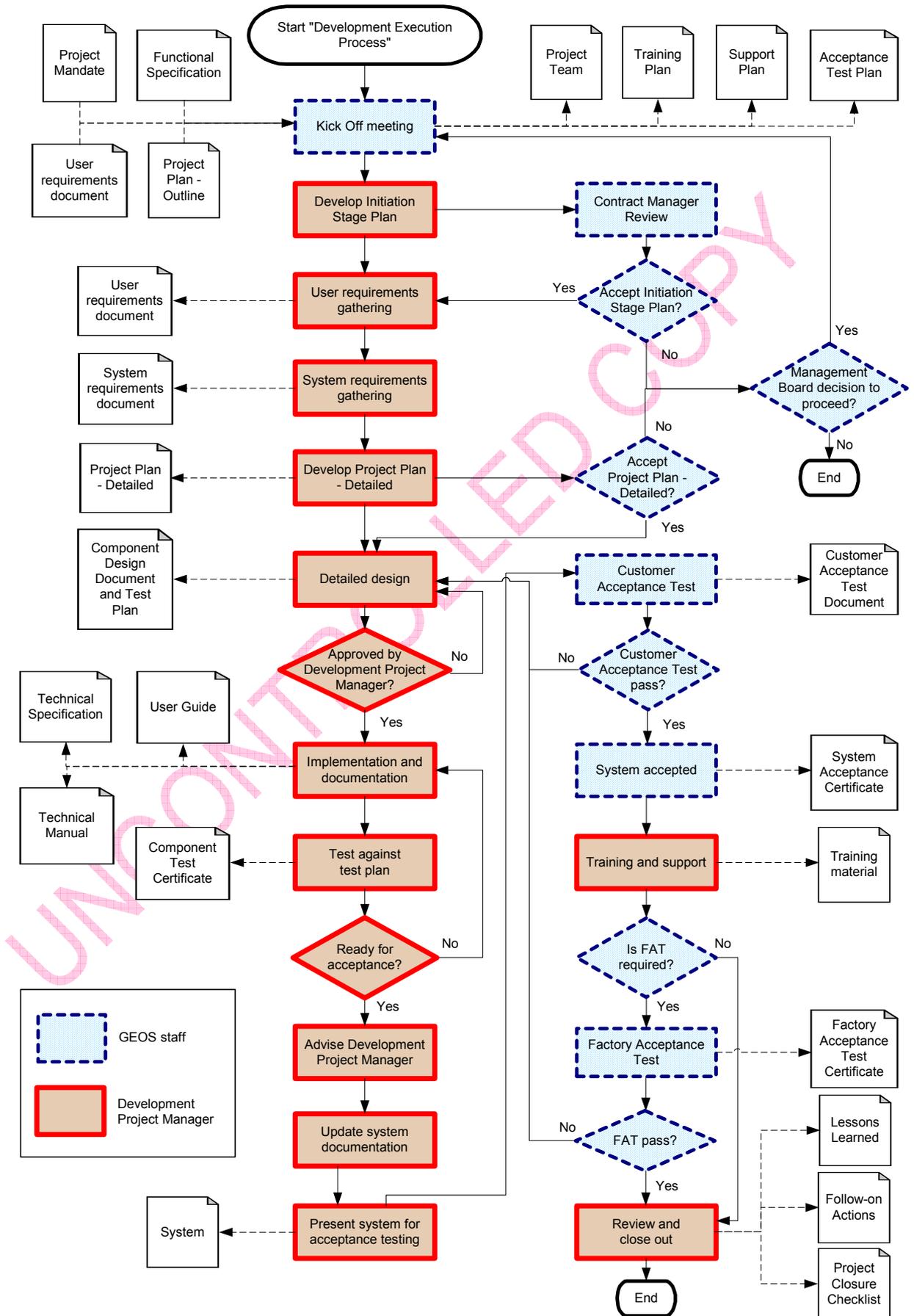
Related Process Charts:

- [New Development](#)
- [Development Execution](#)

Process Chart 7.6: New Development

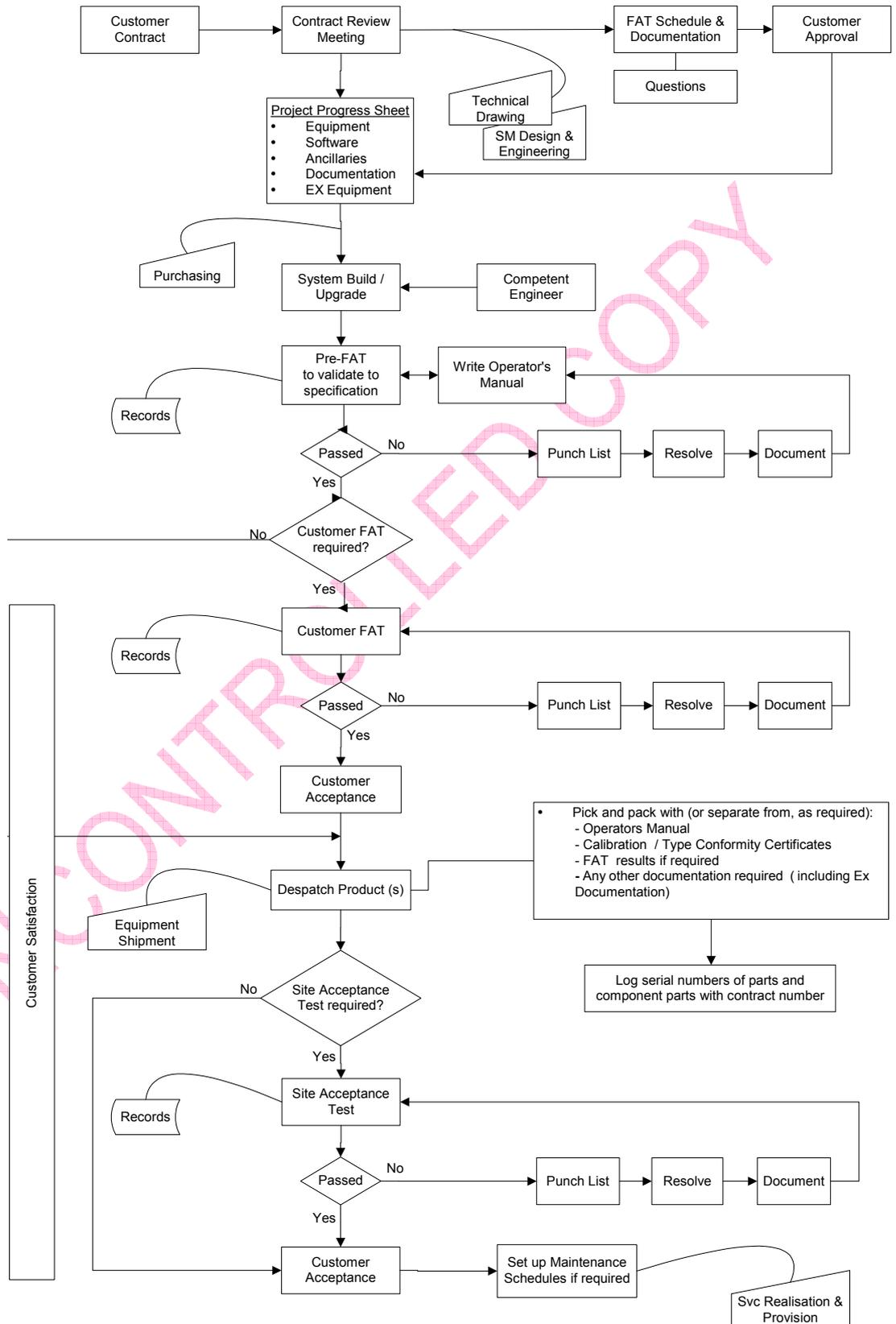


Process Chart 7.7: Development Execution



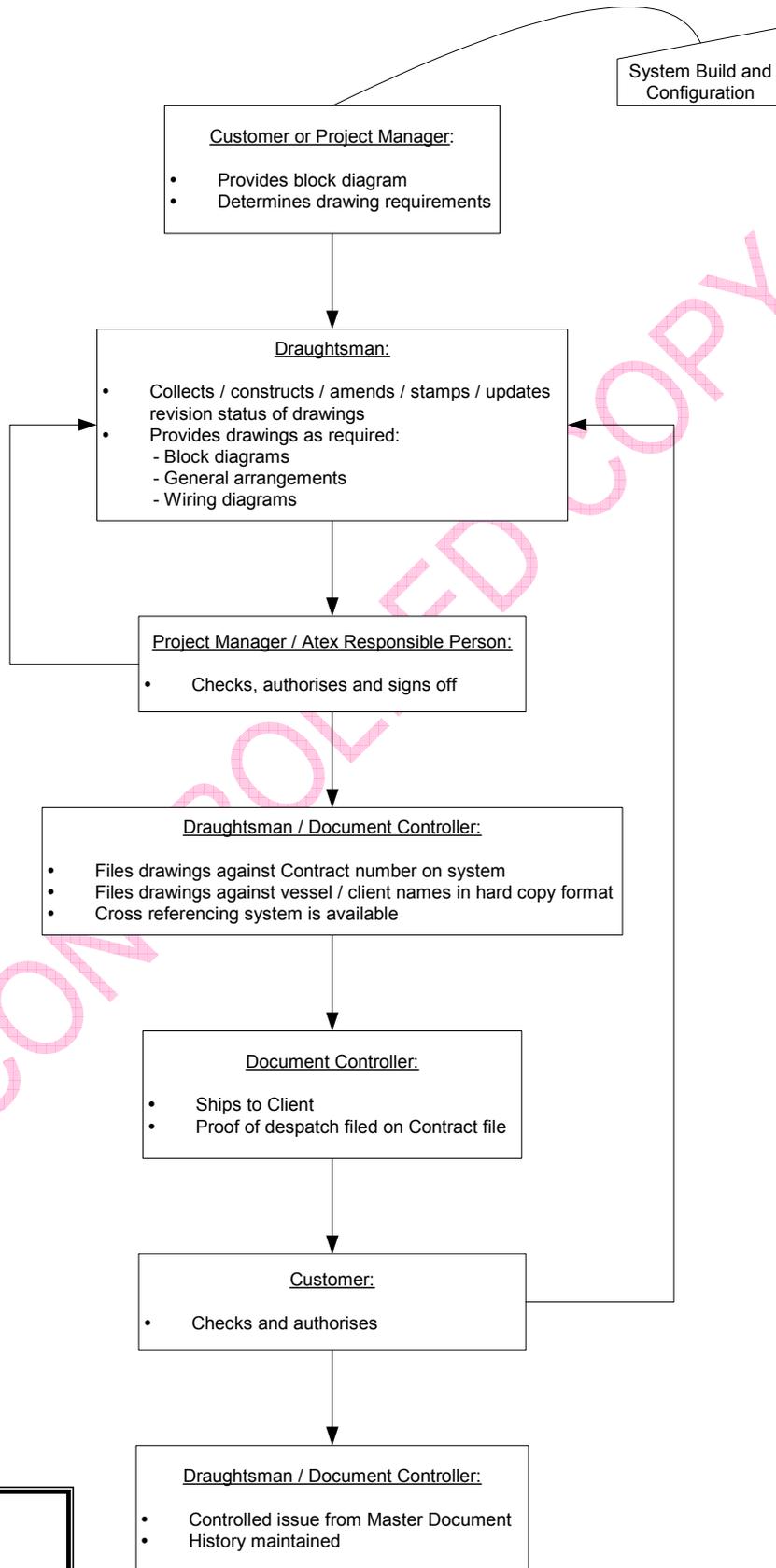
Process Chart 7.8: System Build and Configuration

See also CCTV User Manuals for [Fixed Camera Station](#) and [Pan & Tilt Camera Station](#)



- Related Process Charts:**
- [Technical Drawing](#)
 - [Purchasing](#)
 - [Equipment Shipment](#)
 - [Service Realisation and Provision](#)
 - [Structural Monitoring Design & Engineering](#)

Process Chart 7.9: Technical Drawing

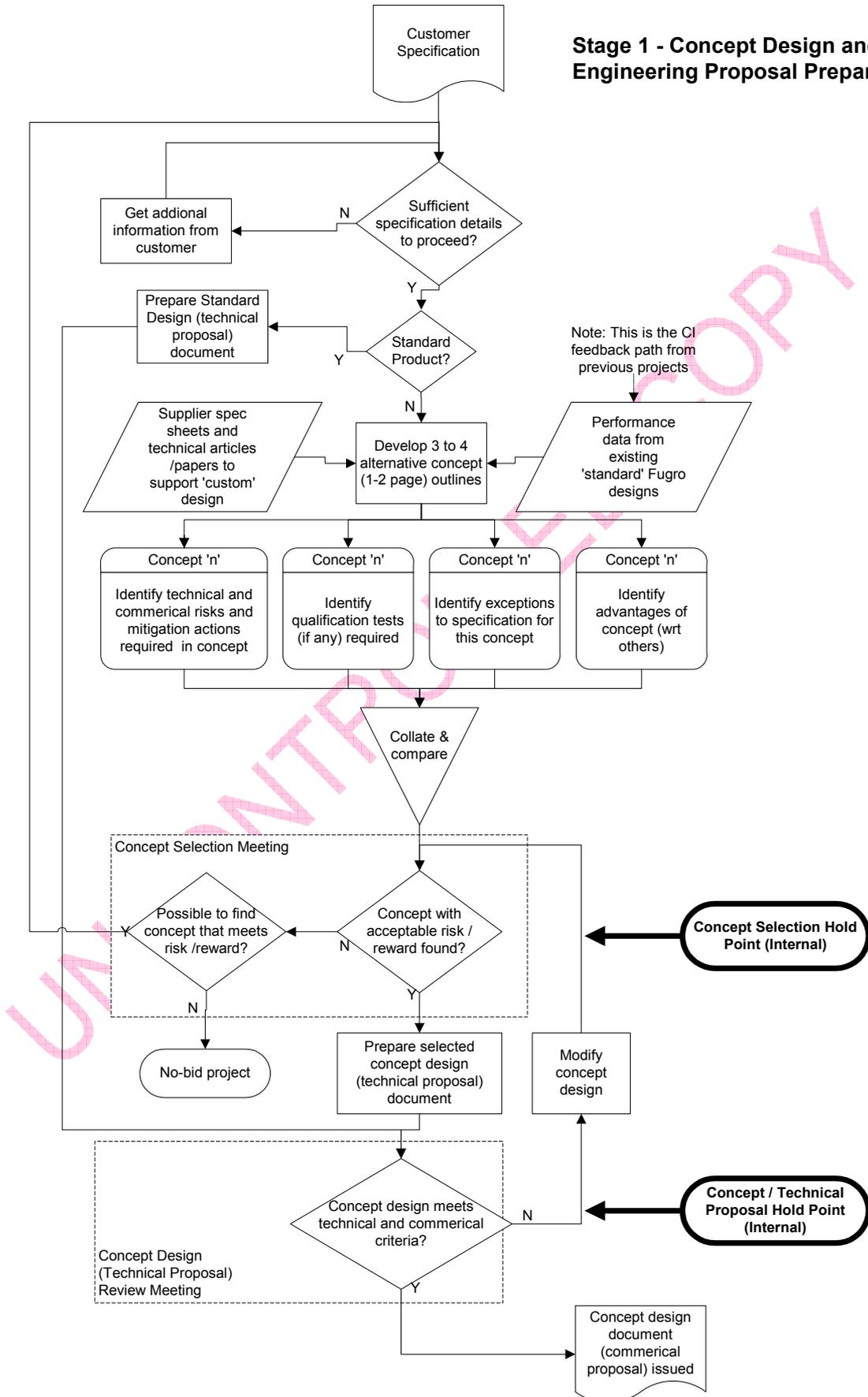


Related Process Charts:

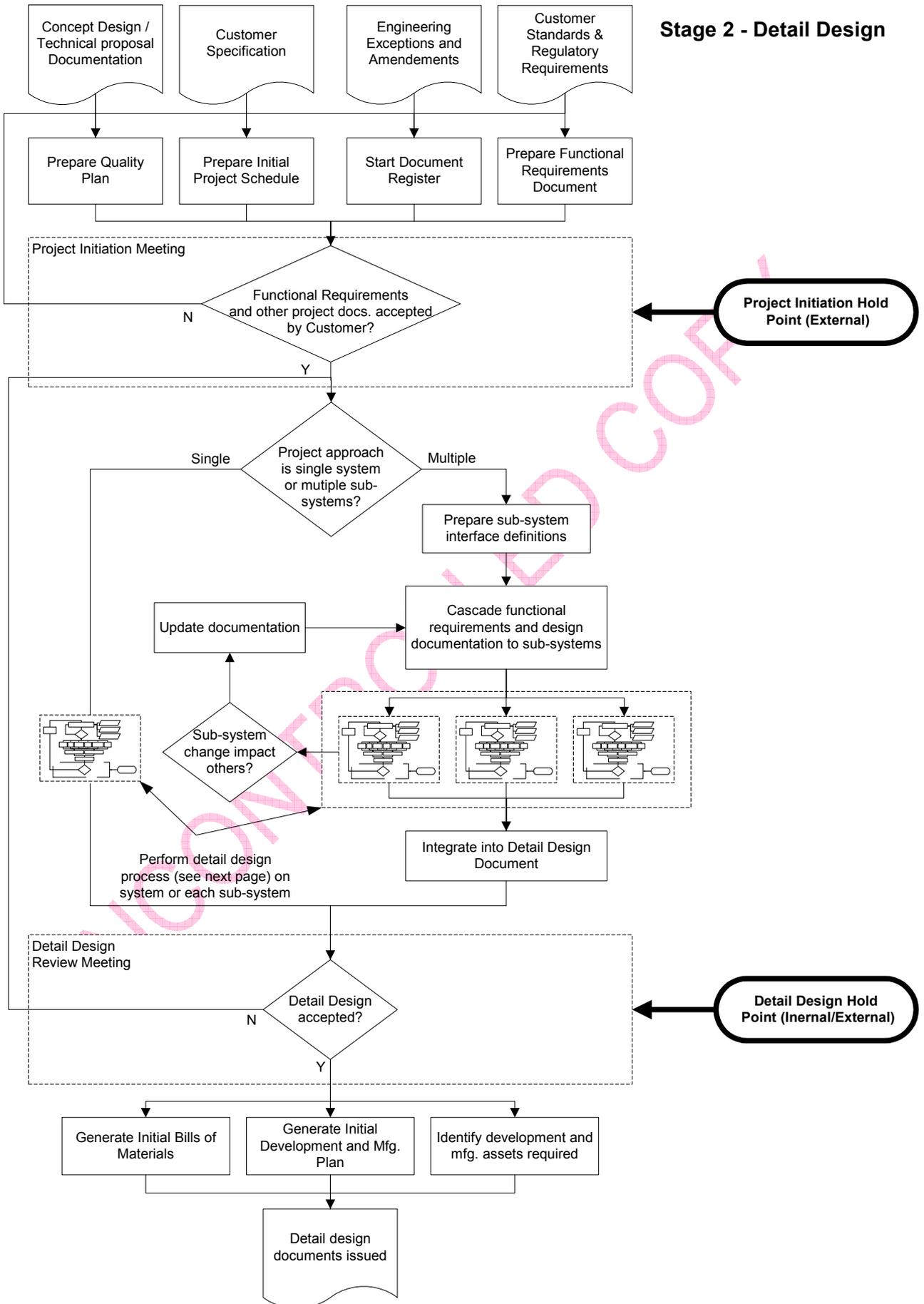
- [System Build and Configuration](#)

Process Chart 7.10: Structural Monitoring Design and Engineering

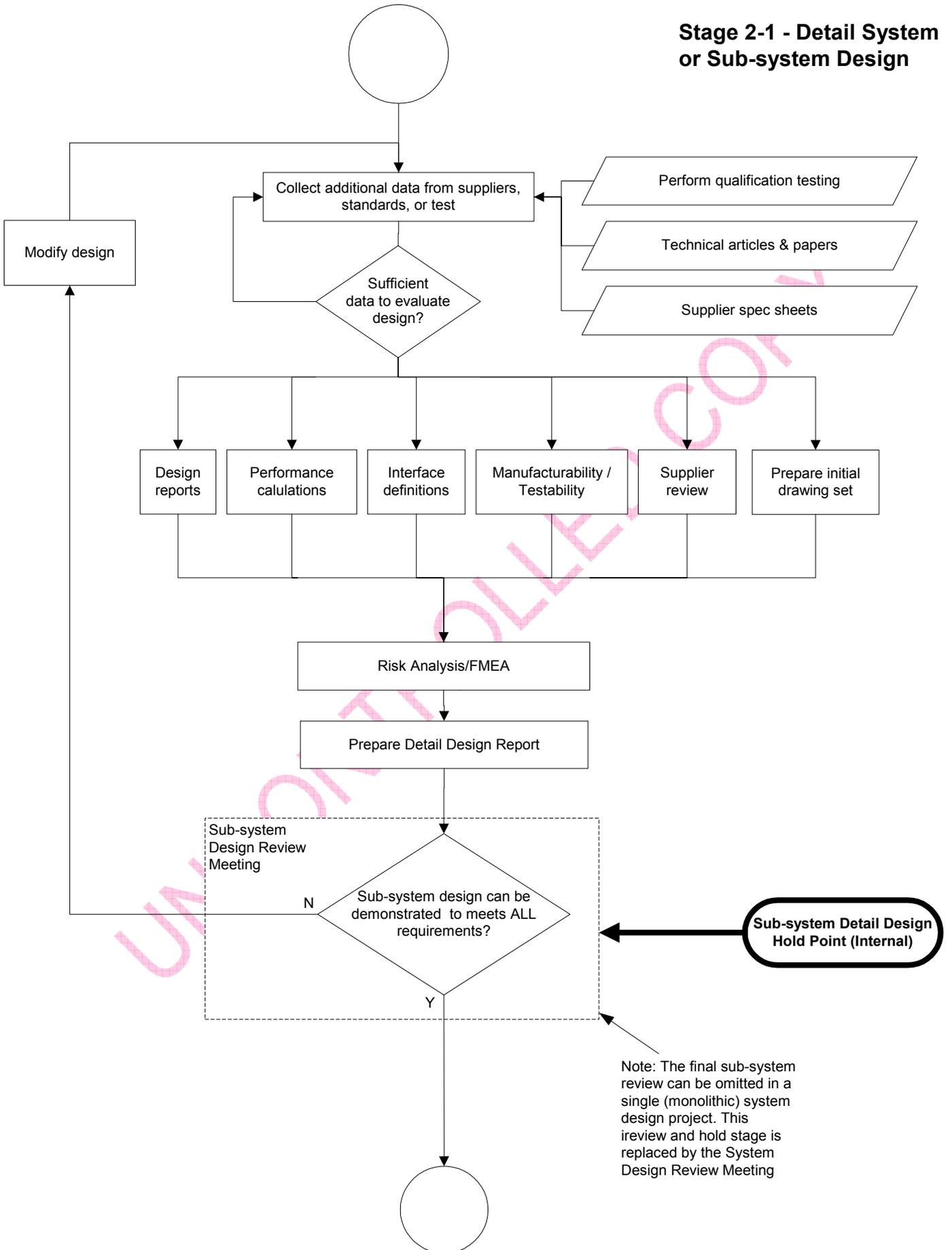
Stage 1 - Concept Design and Engineering Proposal Preparation



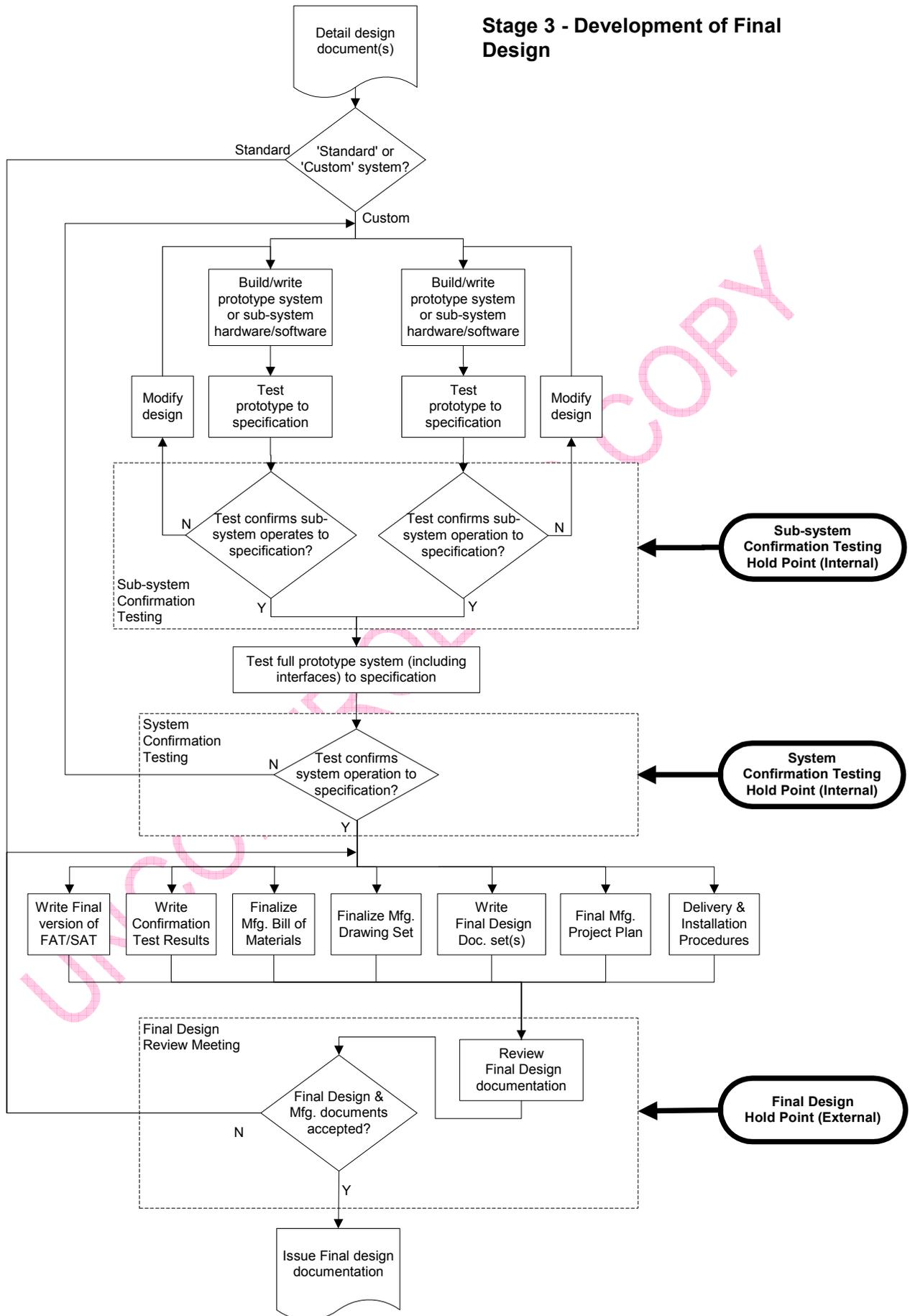
Stage 2 - Detail Design



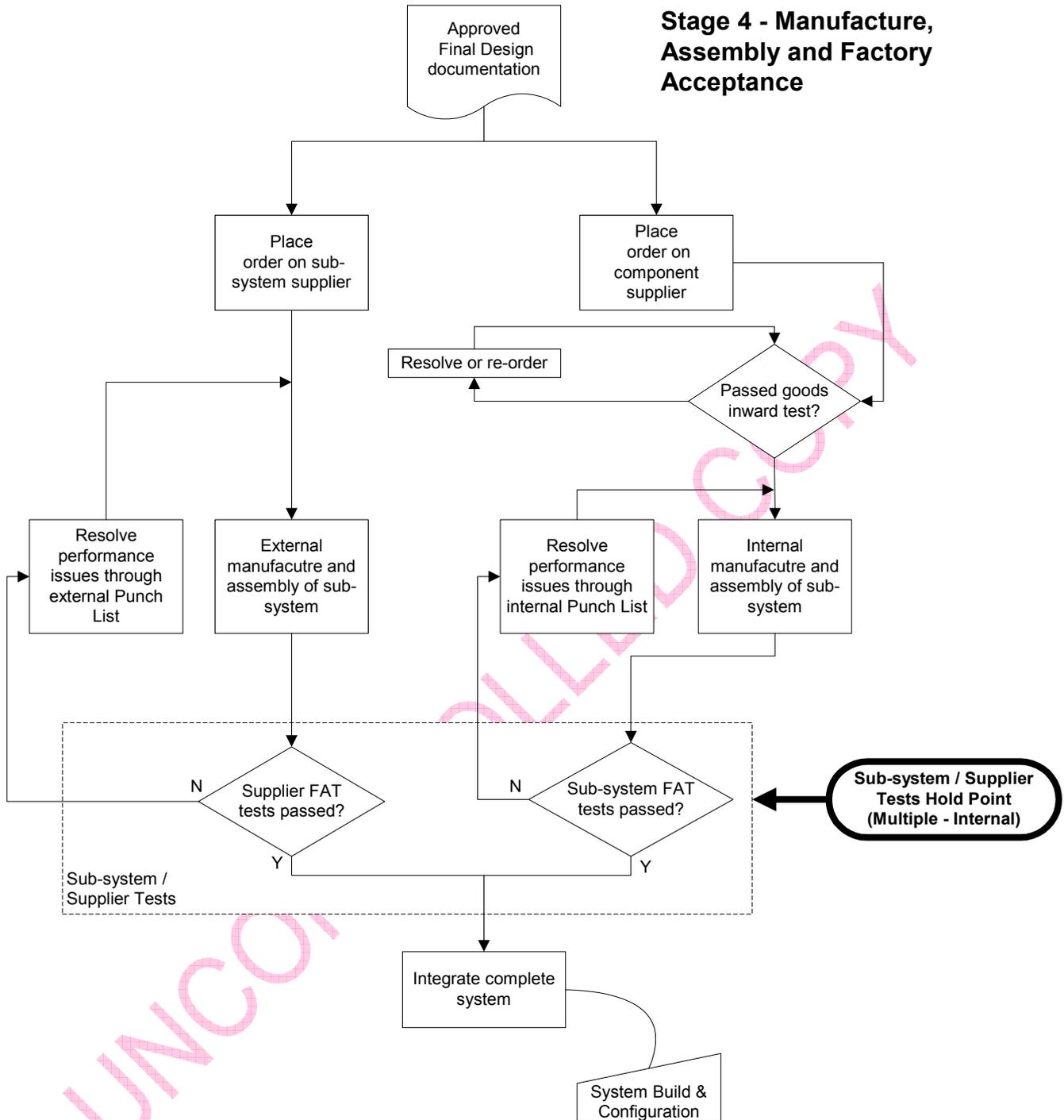
Stage 2-1 - Detail System or Sub-system Design



Stage 3 - Development of Final Design



Stage 4 - Manufacture, Assembly and Factory Acceptance



Related Process Charts:

- [System Build and Configuration](#)

PROCESSES SERIES 8: PURCHASING

Quality Objective

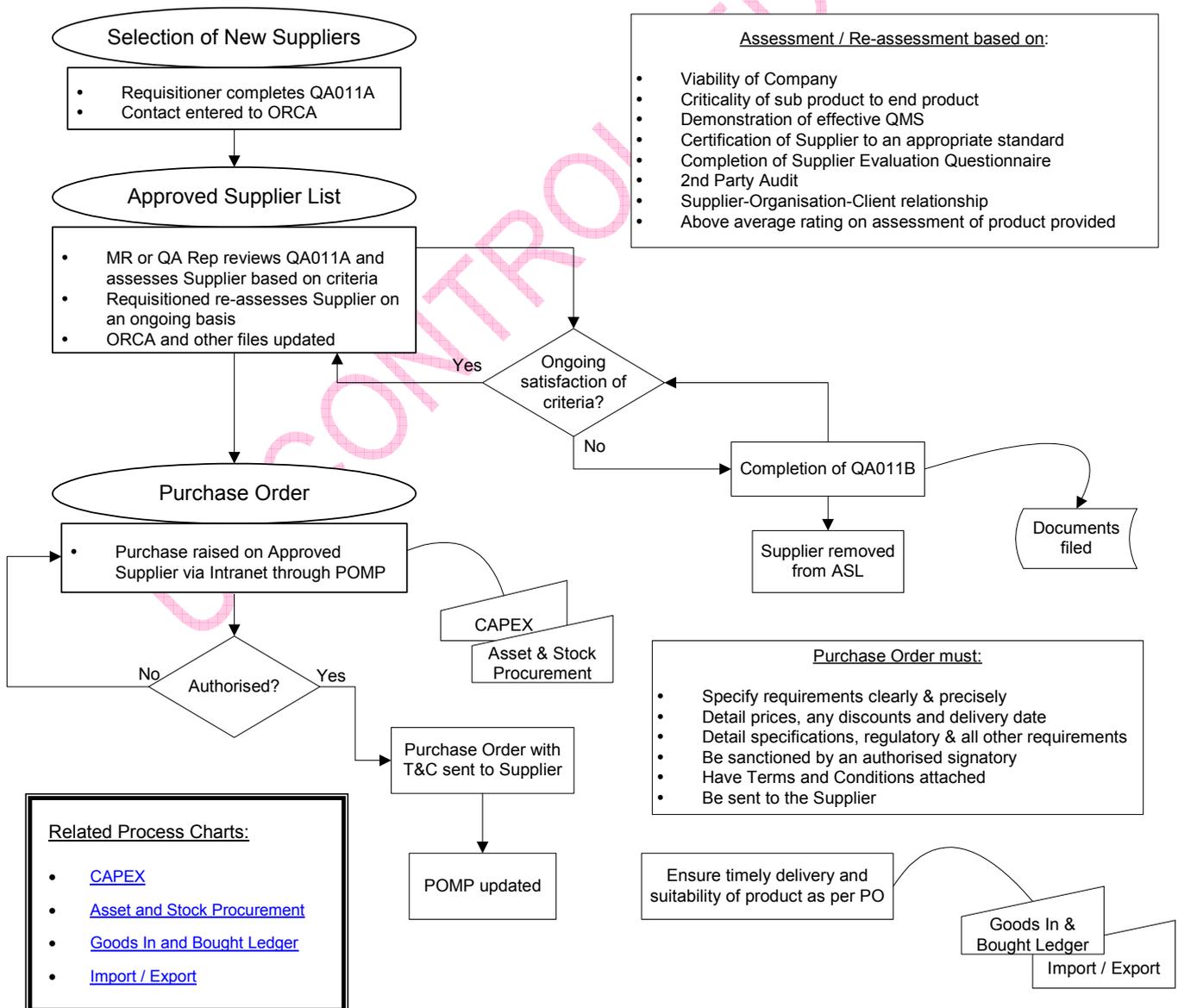
To ensure effective and efficient purchasing processes are implemented for the evaluation and control of purchased product and services, in order that they satisfy organisation needs and requirements, as well as those of interested parties.

Responsibility

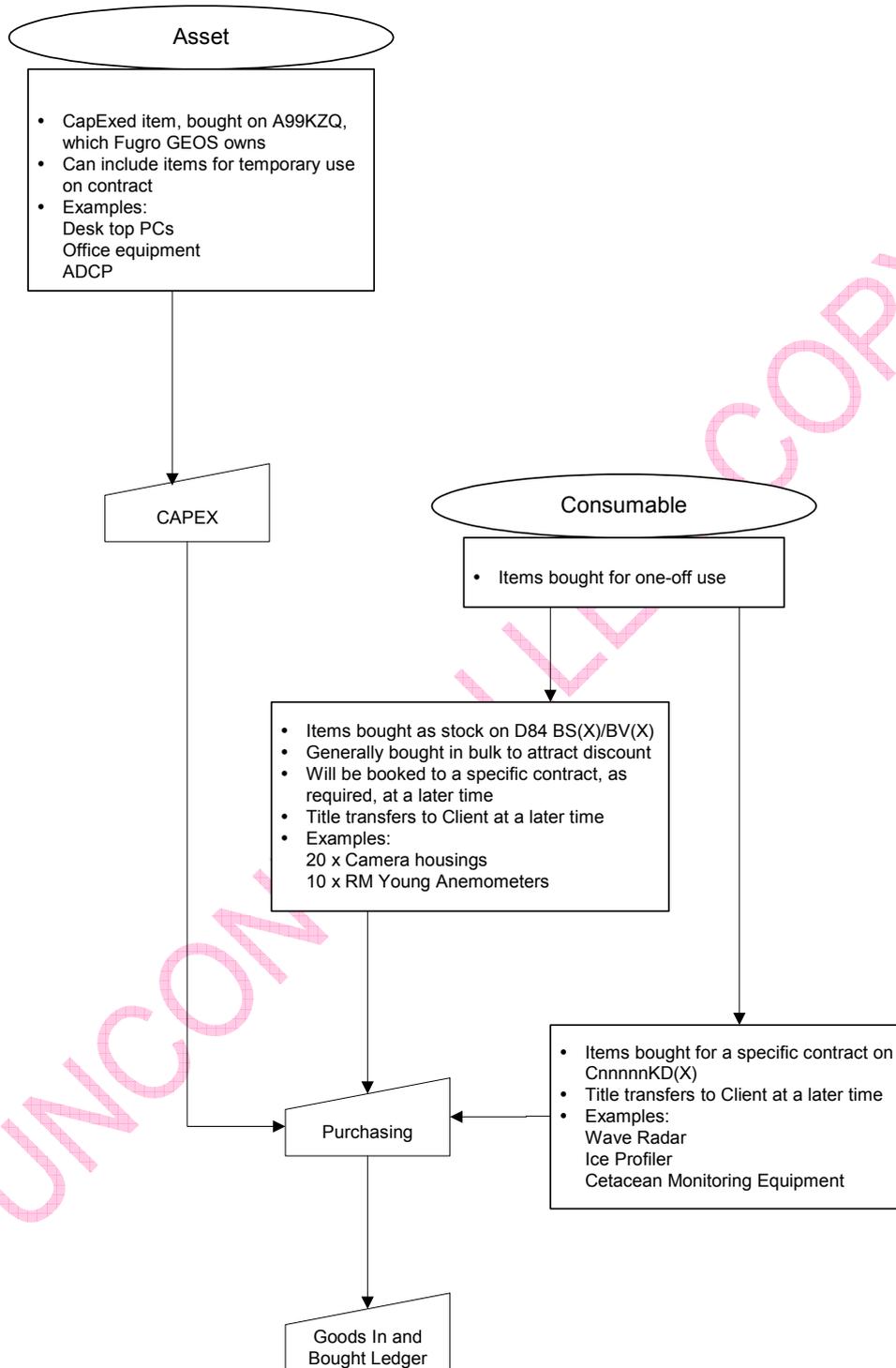
The Management Representative has overall responsibility for supplier approval and periodic reviews of the Approved Supplier List. Responsibility is passed to the QA Representatives at a local level. Requisitioners have responsibility for choosing and maintaining the appropriate supplier, completing the required documentation and for placing appropriately worded purchase orders. Purchase orders are approved by authorised staff.

Processes

Process Chart 8.0: Overview of Supply Chain Management and Purchasing

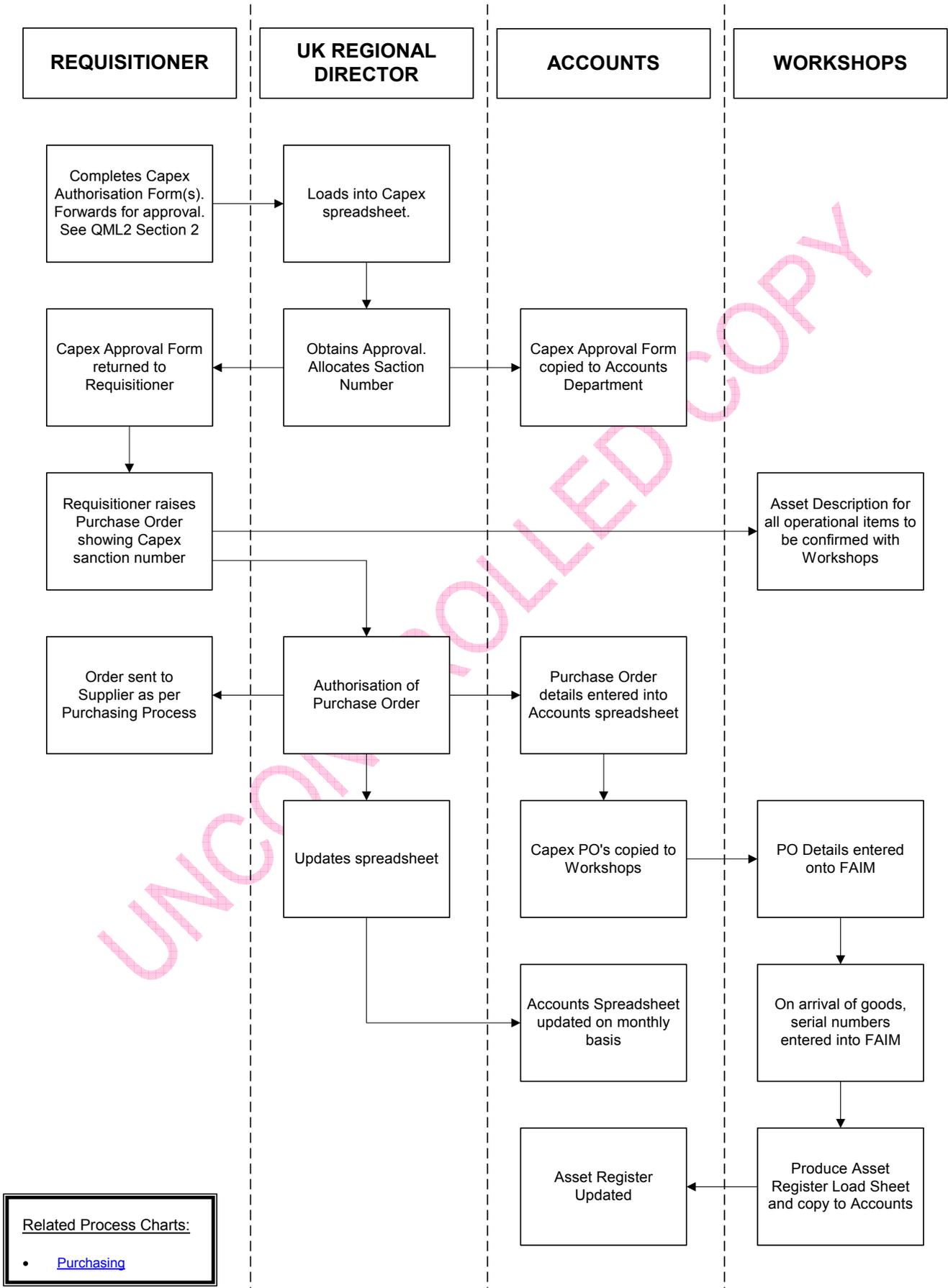


Process Chart 8.1: Asset and Stock Procurement and Control

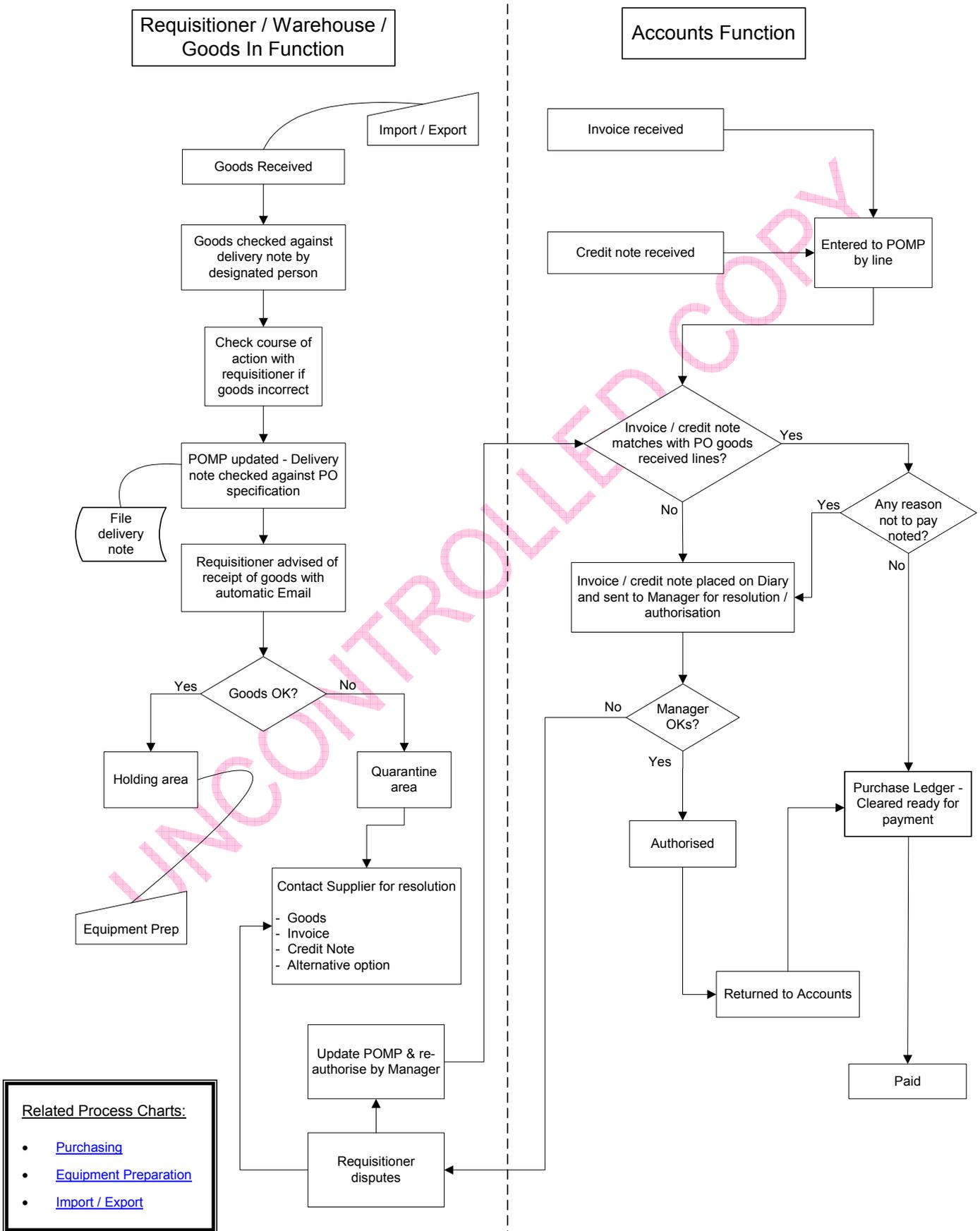


- Related Process Charts:**
- [CAPEX](#)
 - [Purchasing](#)
 - [Goods In and Bought Ledger](#)

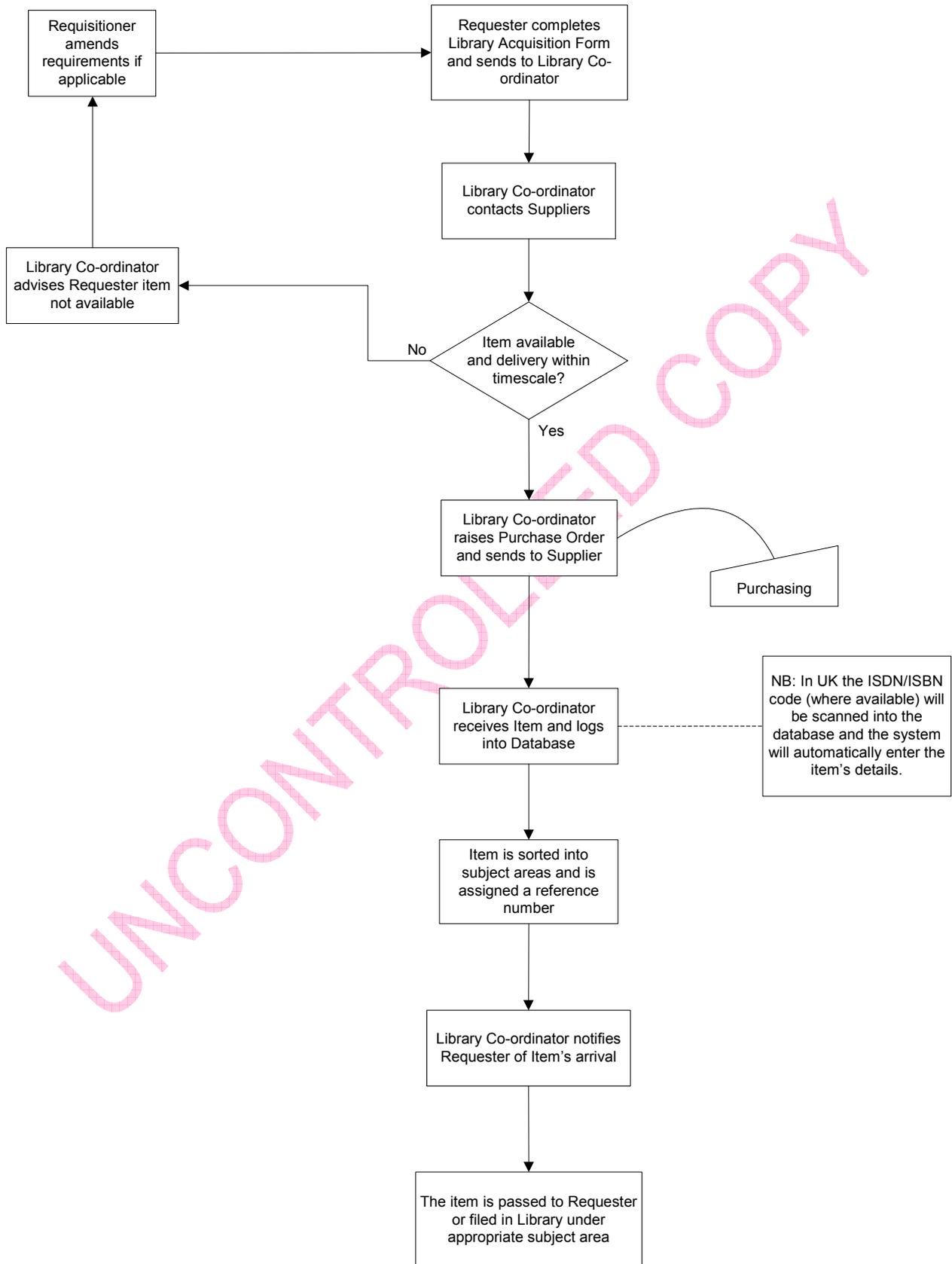
Process Chart 8.2: Capital Expenditure (CapEx)



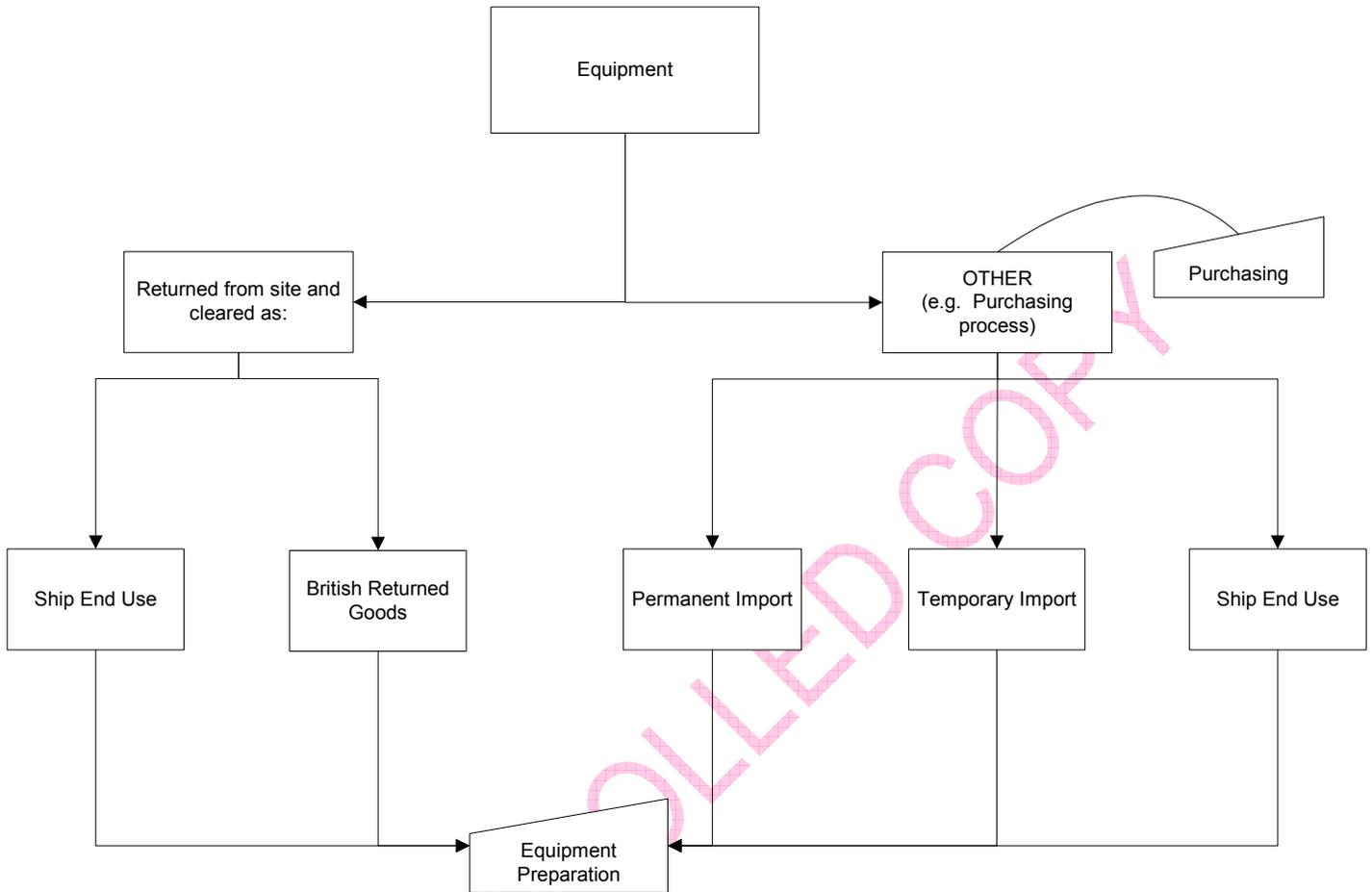
Process Chart 8.3: Goods In and Bought Ledger



Process Chart 8.4: Control of External Documents



Process Chart 8.5: Import / Export



Definitions

	Equipment Types	Pay VAT immediately	Pay Duty immediately	Comments
Ship End Use	ADCPs from TRDI Modems from LinkQuest	No	No	For items that will belong to GEOS For permanent import / testing and storage Cannot be used within UK+12 miles unless for testing Requires Ship End Use Licence (held in Wallingford) HMR&C require monthly reports of movements, disposals, transfers Requires secure storage area
British Returned Goods	Equipment from site	No	No	VAT and duty may have been paid on initial import
Permanent Import	Anything	Yes	Yes	Free circulation within EU and circulation outside EU
Temporary Import	Sub-products for build / onward sale / shipping outside EU	No	No	HMR&C normally allow in UK for 6 months HMR&C notified when item shipped, using "Simplified IPR Suspension Return", which shall include: Agents entry form Inward packing list Outward packing list Shipping details

ALL ITEMS MUST BE CLEARLY AND UNIQUELY IDENTIFIED, SECURELY STORED AND TRACKED

PROCESSES SERIES 9: MONITORING & MEASURING DEVICES CONTROL

Quality Objective

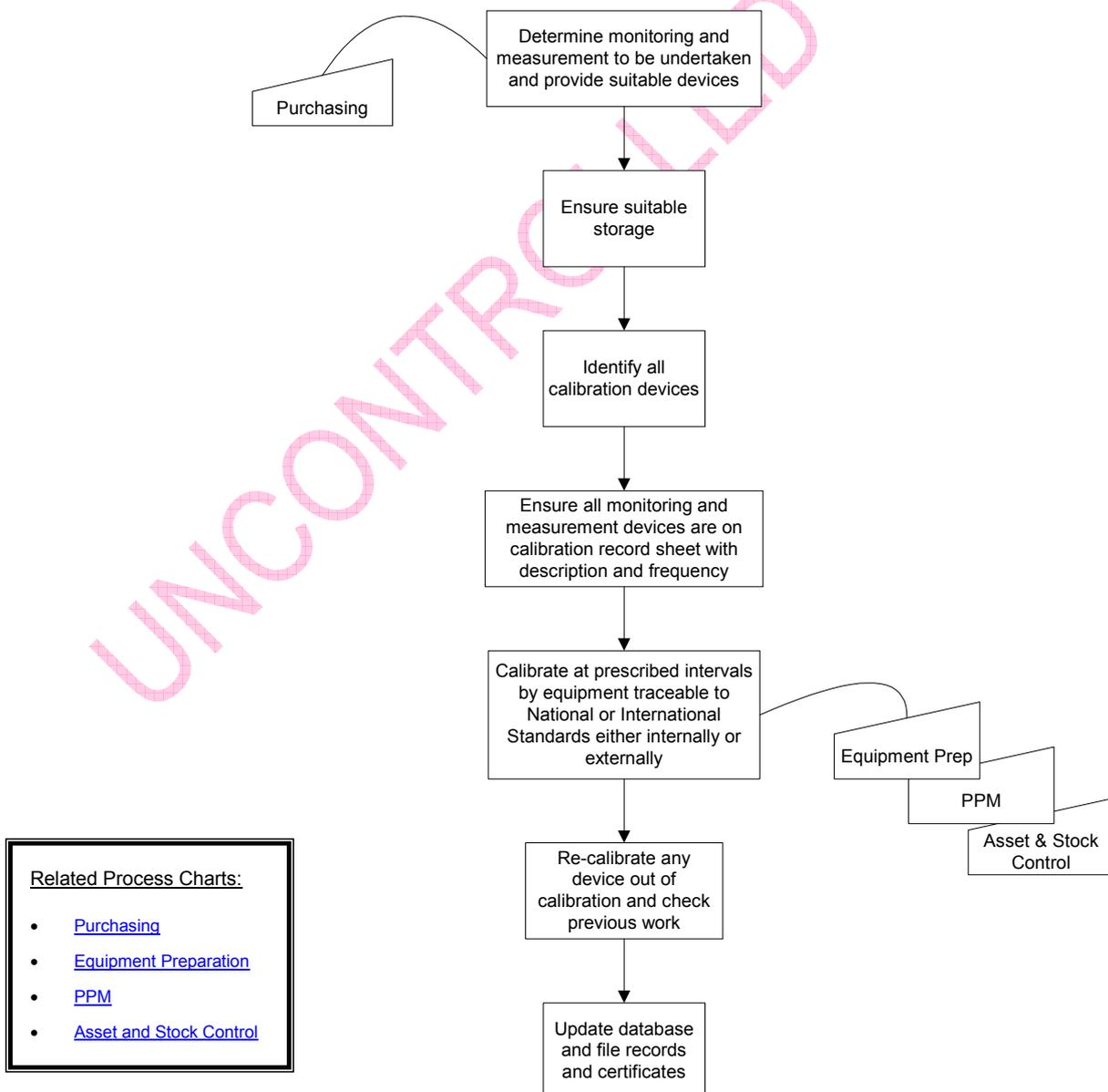
To determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity to determined requirements. To establish processes to ensure that monitoring and measurement can be carried out in a manner that is consistent with the monitoring and measurement requirements

Responsibility

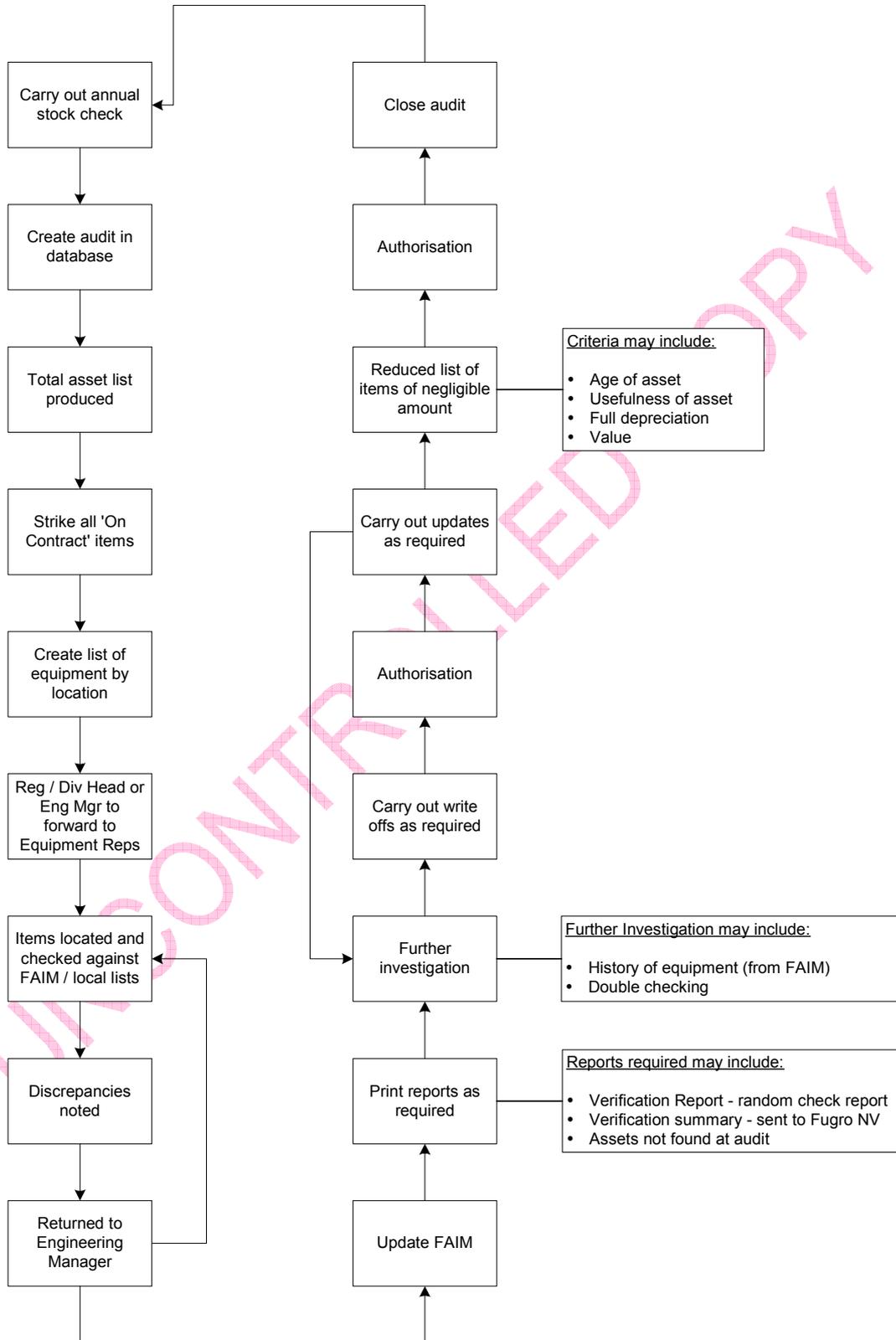
Control of monitoring and measuring devices is the responsibility of the Engineering Manager / Local Workshop Co-ordinator. Records and equipment shall be suitably and securely stored but accessible to authorised persons.

Processes

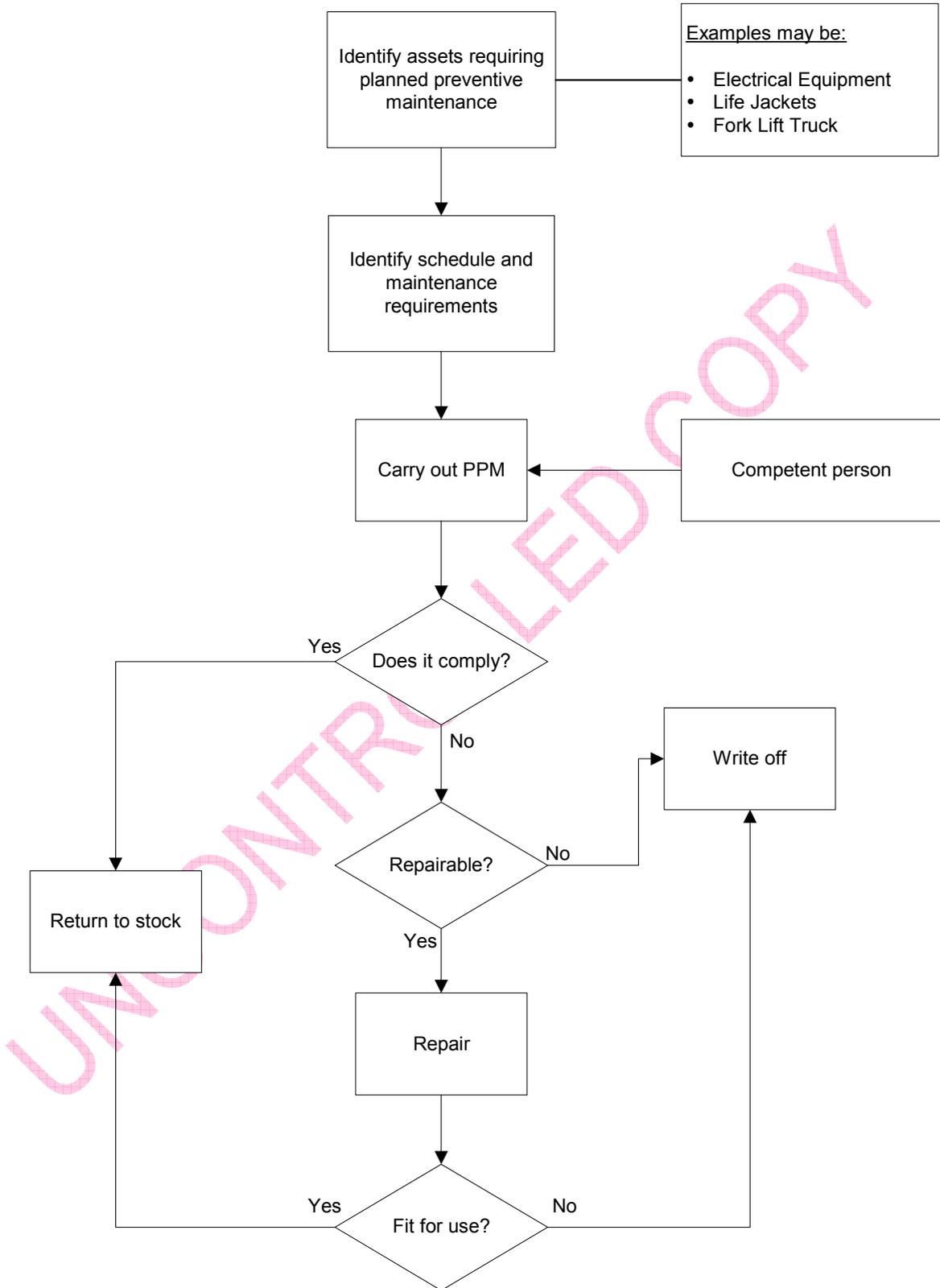
Process Chart 9.0: Overview of the Control of Monitoring & Measuring Devices



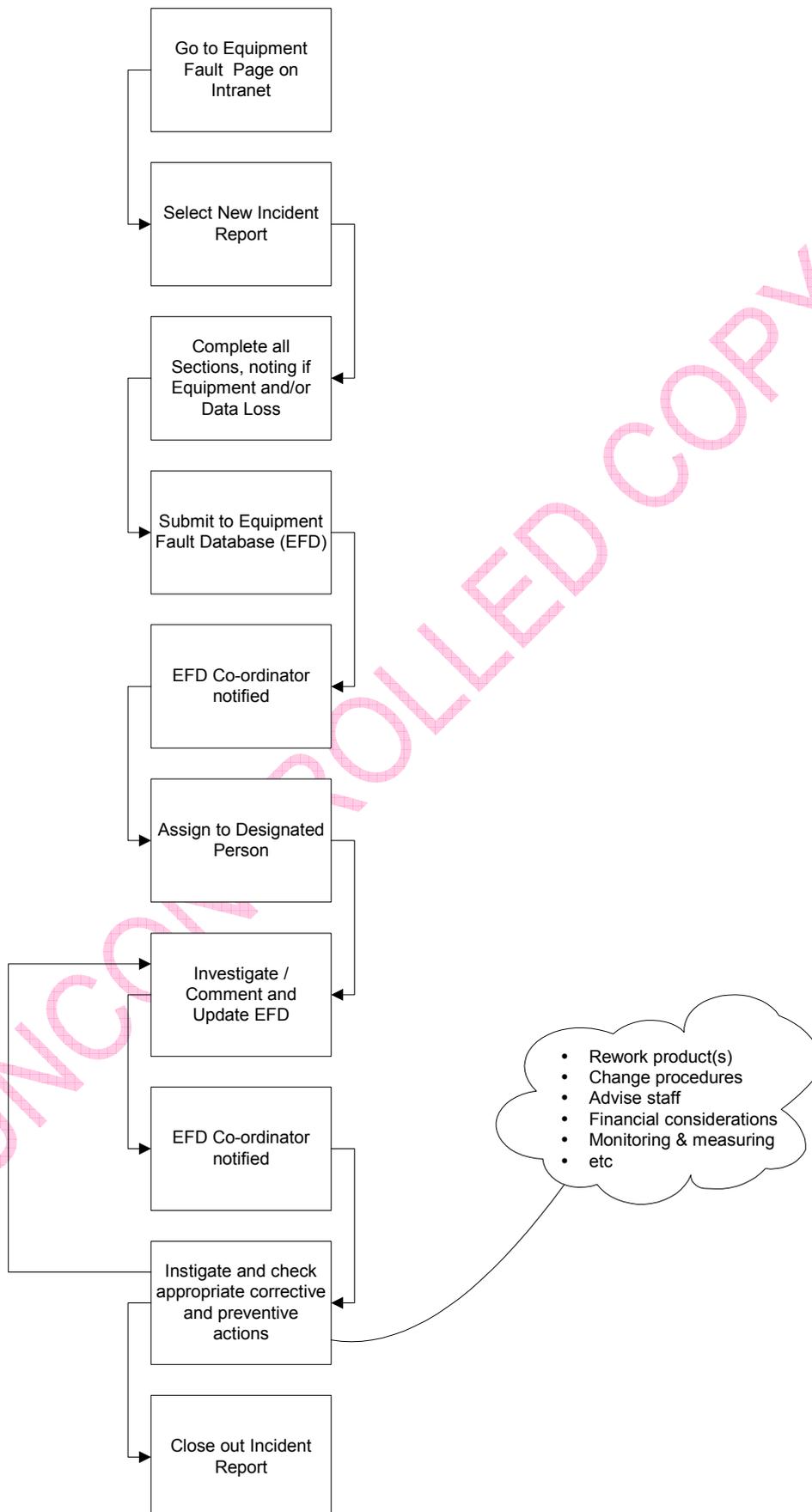
Process Chart 9.1: Asset and Stock Control Verification



Process Chart 9.2: Planned Preventive Maintenance



Process Chart 9.3: Equipment Fault



PROCESSES SERIES 10: CUSTOMER COMPLAINTS

Quality Objective

To ensure any negative responses from customers are dealt with efficiently and professionally and to promote customer satisfaction and continual improvement. In dealing with the complaint, full investigation shall be carried out in order to determine the validity of the complaint and to establish the root and contributory causes giving rise to the complaint and to identify and put in place the appropriate corrective and preventive measures.

Responsibility

It is the ultimate responsibility of the Managing Director to ensure that complaints are dealt with appropriately. It is the responsibility of the Management Representative to facilitate this process and the responsibility of process personnel to carry out this process in a timely and effective manner.

Processes

Process Chart 10.0: Management of Customer Complaints

